1987 Research Catch and Effort Data on Nearshore Reef-Fishes in British Columbia Statistical Areas 12 and 13

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December 1987

Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 1958

Fisheries and Oceans Pêches et Océans

Canada

88-04125/

Canadian Manuscript Report of Fisheries and Aquatic Sciences

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Fisheries and Aquatic Sciences No. 1958

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1987 RESEARCH CATCH AND EFFORT DATA ON NEARSHORE REEF-FISHES IN BRITISH COLUMBIA STATISTICAL AREAS 12 AND 13

by

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Cat. No. Fs 97-4/1958E ISSN 0706-6473

Richards, L. J. and C. M. Hand. 1987. 1987 Research catch and effort data on nearshore reef-fishes in British Columbia statistical areas 12 and 13. Can. MS Rep. Fish. Aquat. Sci. 1958: 59 p.

ABSTRACT

Richards, L. J. and C. M. Hand. 1987. 1987 Research catch and effort data on nearshore reef-fishes in British Columbia statistical areas 12 and 13. Can. MS Rep. Fish. Aquat. Sci. 1958: 59 p.

In 1984 we began a research program to fulfill the need for stock assessments of nearshore reef-fishes in the Strait of Georgia. The 1987 results from MSA 12 and 13 are presented in this report, and are compared with the 1986 results from the same areas. Research CPUE data were collected by angling with trolling rods and reels, using frozen herring as bait. Three depth intervals (5-40 m, 41-70 m, and 71-100 m) were fished at most sites. CPUE decreased with depth in both areas. There was no difference in CPUE between areas over 5-40 m, but rockfish CPUE was higher in MSA 12 than in MSA 13 over 41-70 m, and total CPUE was higher in MSA 12 over 71-100 m. Quillback rockfish, copper rockfish and lingcod were the dominant species in the catch. Species composition varied with depth and statistical area. The greatest number of species were caught in MSA 12. Proportionately more quillback rockfish were sampled in the research catch than in the sport landings. The size of quillback rockfish increased with depth in both MSA 12 and MSA 13. Quillback rockfish, copper rockfish and lingcod were larger in MSA 12 than in MSA 13. Larger copper rockfish and lingcod and smaller quillback rockfish (over 5-40 m only) were caught during surveys in 1987 than in 1986.

RÉSUMÉ

Richards, L. J. and C. M. Hand. 1987. 1987 Research catch and effort data on nearshore reef-fishes in British Columbia statistical areas 12 and 13. Can. MS Rep. Fish. Aquat. Sci. 1958: 59 p.

En 1984, nous avons mis en oeuvre un programme de recherche visant à évaluer les stocks de poissons qui fréquentent les récifs côtiers du détroit de Georgie. Le présent rapport porte sur les résultats obtenus en 1987 dans les MSA 12 et 13, résultats qui sont comparés à ceux obtenus en 1986 dans les mêmes zones. Des données expérimentales sur les PUE ont été obtenues par pêche à la ligne et hameçon appâté de hareng congelé. Trois intervalles de profondeur (5-40 m, 41-70 m, 71-100 m) ont été exploités à la plupart des endroits. Dans les deux zones, les PUE ont montré une baisse en fonction de la profondeur. Par contre, les PUE ne variaient pas entre les deux zones à des profondeurs allant de 5 à 40 m mais les PUE de sébaste étaient plus élevées dans la MSA 12 que dans la MSA 13 aux profondeurs allant de 41 à 70 m. De plus, les PUE totales étaient plus élevées dans la MSA 12 aux profondeurs allant de 71 à 100 m. Le sébaste à dos épineux, le sébaste cuivré et la morue lingue étaient les espèces dominantes dans les prises tandis que la composition spécifique variait selon la profondeur et la zone statistique. C'est dans la MSA 12 que l'on a capturé le plus grand nombre d'espèces. Toute proportion gardée, il y avait plus de sébaste à dos épineux dans les prises expérimentales que dans les prises sportives. La taille du sébaste à dos épineux a augmenté en fonction de la profondeur dans les MSA 12 et 13. Le sébaste à dos épineux, le sébaste cuivré et la morue-lingue étaient plus gros dans la MSA 12 que dans la MSA 13. Les sébastes cuivrés et les morues-lingues capturés en 1987 étaient plus gros, et les sébastes à dos épineux étaient plus petits (aux profoundeurs allant de 5 à 40 m seulement) que ceux capturés en 1986.

INTRODUCTION

This report summarizes research catch and effort data on nearshore reef-fishes collected during 1987 as part of a stock assessment program for these fishes. We also compare 1987 data with 1986 data from the same areas (Richards and Cass 1987), and with data from the sport fishery. Surveys were conducted in Johnstone Strait and the Strait of Georgia in MSAs (minor statistical areas) 12 and 13. We used angling techniques that had been developed during 1984-1985 (Richards et al. 1985; Richards and Cass 1985). The objectives of the 1987 angling work were to obtain research fishing data to (1) compare with catch data from the sport fishery, (2) compare with sales-slip and logbook records from the commercial fishery, (3) examine inter-annual variability in angling CPUE among sites, (4) examine among-site differences that may be related to exploitation, and (5) estimate relative abundance, species composition and the size distributions of rockfish and lingcod in these areas.

METHODS

FISHING SITES AND DATES

Fishing in MSA 12 and 13 was conducted at the 1986 survey sites (Fig. 1). MSA 12 sites had been chosen by dividing the shoreline area accessible by boat within 3/4 h from Telegraph Cove (an area of commercial rockfish fishing) into 1-min-latitude by 1-min-longitude blocks and choosing blocks at random. MSA 13 sites had been chosen from known areas of commercial fishing (Richards and Cass 1987). MSA 12 sites were surveyed between June 16-24, 1987 from a 7-m herring skiff and from a 5-m Boston whaler. Generally, two anglers operated from each boat. Due to mechanical problems, it was not possible for each boat to survey each site. The four southern MSA 13 sites were surveyed between June 2-5, 1987, and all but one of the MSA 13 sites were surveyed between July 21-23, 1987. Three anglers operated from the herring skiff at all times.

SURVEY METHODS

Fishing methods were similar to those described in Richards and Cass (1985). We used trolling rods and reels and 12-cm, frozen bait herring. The boat was allowed to drift with the motor used occasionally to keep the boat in position against a strong current. Three depth intervals were surveyed at most sites: 5-40 m, 41-70 m, and 71-100 m. Both boats were equipped with an echo sounder.

Fishing effort was defined as the sum of the fishing times of each angler, measured by stopwatch, from the time that the line was in position near the bottom, until a fish was hooked or the line was hauled in. Most records represented a fishing effort of at least 0.3 h. Fishing was terminated sooner if weather or current conditions were unfavorable, if more than about 10 rockfish were caught, or if the catch was predominantly spiny dogfish. We attempted to replicate fishing at a depth interval each day at a site, and to survey each site on two different days.

A catch was recorded if the fish was brought to a depth at which species identification could be visually determined. All landed rockfish were measured for fork length, sex and maturity. Otoliths were collected from most species of rockfish. Conductivity, temperature and salinity data were not available for 1987 due to equipment problems.

SPORT DATA

Whenever possible, we sampled landed catch from the sport groundfish fishery in MSA 12 for species composition, fork length and sex. Samples were collected at the marina at Telegraph Cove.

RESULTS AND DISCUSSION

RAW DATA

Appendix 1 gives common and scientific names for all fish species caught and describes the species codes used in the remaining tables. Appendix 2 describes the fishing and weather codes used in Appendix 3. Appendix 3 summarizes the data collected on individual record sheets, including time, location and depth of fishing, weather conditions, and the number of fish caught of each species. Fishing time is reported as the sum of the fishing times of each angler. Appendix 4 describes rockfish maturity codes. Data on individual fish are presented in Appendix 5a for the research data on rockfish, Appendix 5b for the research data on other species, and Appendix 6 for the sport data. Unfortunately, it was obvious from preliminary analyses of the weight-length relationship, that recording errors were made in length or weight for some fish listed in Appendix 5. These cases are identified in Appendix 5 and then excluded from further analyses.

VARIATION IN CPUE

Table 1 provides a summary of effort, catch and CPUE for each depth interval at each site. For all species combined, CPUE ranged from 2.9-28.3 fish h^{-1} for MSA 12 and from 4.4-37.5 fish h^{-1} for MSA 13. Total rockfish CPUE ranged from 2.0-23.9 fish h^{-1} for MSA 12 and from 3.0-27.3 fish h^{-1} for MSA 13.

There are many factors that could account for variation in CPUE. One of the main factors is, of course, fish abundance. Although CPUE generally increases with fish abundance, gear saturation did occur on some occasions. Yellowtail rockfish and black rockfish, in particular, tended to be caught before the line reached the bottom and would follow the line to the surface as it was reeled in.

We tested for the effects of weather conditions, sea surface conditions, surface current, tidal phase, vessel, motor on or off, and depth on CPUE. We used Kruskal-Wallis tests or Wilcoxon two-sample tests on CPUE from individual records. Records were excluded from the analysis if three or more dogfish were caught or if fishing had been terminated due to a dogfish catch. Tests were repeated for quillback rockfish CPUE, total rockfish CPUE and total CPUE.

The effects of weather conditions, sea surface conditions, surface current, or motor on or off were not significant ($p>0.05$). For MSA 13, total rockfish CPUE and total CPUE decreased with depth ($p<0.001$). For MSA 12, total rockfish CPUE and total CPUE were lower at slack tides ($p<0.05$), total rockfish CPUE was higher for fishing from the Boston whaler ($p<0.05$), and total CPUE decreased with depth ($p<0.001$). The vessel effect in MSA 12 may have occurred because the two vessels visited some different sites. The tide effect was probably confounded with depth. The deepest depths (with the lowest CPUE) could only be fished at slack tide. We repeated all of the tests for MSA 12 using CPUE over 5-40 m only, and none of the effects were significant.

Because of the depth effects, we divided the data into depth intervals to test for differences between statistical areas. There was no significant difference in any CPUE measure over 5-40 m ($p>0.05$). Over 41-70 m, quillback rockfish CPUE and total rockfish CPUE, but not total CPUE, were higher in MSA 12 ($p<0.05$). Total CPUE was higher in MSA 12 over 71-100 m ($p<0.05$).

The CPUE that was measured at a site in 1987 was correlated with the measurement made in 1986 ($p<0.01$, $n=39$) for quillback rockfish CPUE ($r=0.49$), total rockfish CPUE ($r=0.49$) and total CPUE ($r=0.48$). In all cases, mean CPUE was lower in 1987 than in 1986. We used a paired t-test to determine whether this difference was significant. Differences between 1986 and 1987 were not significant for MSA 12 or MSA 13 separately or combined ($p>0.05$). We combined areas to test for depth effects. Again, differences were not significant over 5-40 m, or over 71-100 m. However, all CPUE measures were lower over 41-70 m in 1987 ($p<0.05$).

SPECIES COMPOSITION

There were obvious differences in species composition between statistical areas and with depth (Table 2, Appendix 3). The greatest number of species were caught in MSA 12, and the fewest were caught in MSA 13. Dusky rockfish, widow rockfish, yellowtail rockfish and black rockfish were caught in MSA 12 only. Copper rockfish were caught over 5-40 m only, and most yelloweye rockfish were caught over 71-100 m. The overall dominant species were quillback rockfish, copper rockfish, spiny dogfish, kelp greenling and lingcod. Other species included ratfish, Pacific cod, tiger rockfish, red Irish lord, brown Irish lord, Pacific staghorn sculpin, and cabezon. During SCUBA diving near the MSA 12 sites we also observed china rockfish (S. nebulosus), although this species was not caught by angling in 1986 or 1987.

Species composition of the sport fishery in MSA 12 is shown in Table 3. The dominant species were yellowtail rockfish and kelp greenling. As was found in 1986, the rockfish composition of the sport fishery landings was very different from that of the research catch. Fishing method obviously has a major effect on species composition of the catch. Bocaccio were not present in the research catch and the incidence of quillback rockfish was lower in the sport landings. There was no difference in median length between the research catch and the sport landings (Wilcoxon two-sample test, $p>0.10$) for yellowtail rockfish and kelp greenling, the only two species with sufficient sample sizes for the test.

SIZE COMPOSITION

Length-frequency histograms are displayed for copper rockfish (Fig. 2), yellowtail rockfish (Fig. 3), lingcod (Fig. 4), kelp greenling (Fig. 5) and quillback rockfish by area and depth (Fig. 6). Weight-frequency histograms for quillback rockfish are displayed by area in Figure 7. Mean lengths and weights (where measured) corresponding to Figures 2-7 are given in Table 4.

We used Wilcoxon two-sample tests to compare median lengths and weights between sexes within a statistical area, and to compare between statistical areas for each species. We used Kruskal-Wallis tests to compare among depth intervals within a statistical area for quillback rockfish, the only species with a sufficiently large sample size. There were no sex-related differences in length or weight for any species within a statistical area ($p<0.05$), and so sexes were combined for the remaining analyses. For quillback rockfish, length and weight increased with depth ($p<0.001$) for both MSA 12 and MSA 13. Larger quillback rockfish were caught in MSA 12 than in MSA 13 over 5-40 m and over 41-70 m ($p<0.001$). Larger copper rockfish ($p<0.01$) and lingcod ($p<0.001$) were also caught in MSA 12 than in MSA 13.

Wilcoxon two-sample tests were also used to compare median lengths and weights of each species caught in 1986 and 1987. In MSA 12, larger copper rockfish ($p<0.05$), yellowtail rockfish ($p<0.001$) and black rockfish ($p<0.01$) were caught in 1987. Quillback rockfish were compared by depth interval. Smaller quillback rockfish were caught in 1987 over 5-40 m only ($p<0.01$). There were no significant differences between years for kelp greenling or lingcod in MSA 12, or for any species in MSA 13.

ACKNOWLEDGMENTS

Rick Harbo, Tom Hollingshead and Andrea Osborne participated in the field aspects of this program. Jeff Fargo reviewed the manuscript.

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Table 1. A summary of CPUE (fish/h) by species, and of the total rockfish catch and total catch for each depth interval at each site. N, number of records for that depth and site; NF, number of fish caught.

DEP[a]	SITE	N	NF	Time	CPUE[b]					
				(h)	CO	QB	YE	LC	Tot RF	Total
1	12-04	3	22	1.28	1.56	6.23	-	1.56	7.79	17.14
1	12-06	4	33	1.63	0.61	8.57	-	1.22	14.08	20.20
1	12-16	5	43	1.93	3.62	5.69	-	0.52	15.00	22.24
1	12-22	5	42	1.48	0.67	15.51	-	-	16.18	28.32
1	12-31	4	24	1.65	0.61	7.27	-	1.21	9.09	14.55
1	12-36	4	29	1.57	6.38	5.11	-	-	16.60	18.51
1	12-38	4	33	1.45	2.07	13.79	-	-	20.69	22.76
1	12-42	4	27	1.48	6.74	8.76	-	0.67	15.51	18.20
1	12-65	4	29	1.63	-	12.86	-	-	13.47	17.75
1	12-66	4	21	1.57	0.64	3.83	-	1.91	5.11	13.40
1	13-02	4	26	1.68	5.35	7.72	-	2.38	13.07	15.45
1	13-03	5	55	1.47	10.91	16.36	-	8.18	27.27	37.50
1	13-05	4	14	1.72	1.17	2.91	-	2.33	4.08	8.16
1	13-06	6	40	2.62	3.06	7.64	-	2.68	10.70	15.29
1	13-07	6	45	2.55	3.53	12.16	-	0.78	16.47	17.65
1	13-08	4	21	1.87	4.82	1.07	-	1.61	5.89	11.25
2	12-04	4	24	1.52	-	9.89	-	0.66	10.55	15.82
2	12-06	4	13	1.55	-	7.10	-	-	7.74	8.39
2	12-16	4	36	1.47	-	16.36	0.68	0.68	23.86	24.55
2	12-22	5	41	1.55	-	16.13	-	-	19.36	26.45
2	12-31	4	17	1.67	-	9.00	-	1.20	9.00	10.20
2	12-36	4	18	0.93	-	4.29	-	-	4.29	19.29
2	12-38	5	7	1.72	-	2.91	-	0.58	2.91	4.08
2	12-65	4	27	1.52	-	11.21	-	0.66	16.48	17.80
2	12-66	4	5	1.50	-	2.00	-	0.67	2.00	3.33
2	13-02	4	10	1.68	-	2.97	-	0.59	2.97	5.94
2	13-03	5	35	1.85	-	12.43	-	5.41	12.43	18.92
2	13-05	4	18	1.65	-	4.24	-	3.03	5.45	10.91
2	13-06	4	13	1.80	-	3.89	-	2.22	3.89	7.22
2	13-07	5	17	2.07	-	5.32	-	2.42	5.32	8.23
2	13-08	4	17	1.75	-	5.71	-	1.71	5.71	9.71
3	12-06	5	11	1.38	-	1.45	-	-	1.45	7.95
3	12-16	4	28	1.40	-	5.71	-	-	12.14	20.00
3	12-22	4	14	1.38	-	5.78	0.72	-	7.95	10.12
3	12-31	4	15	1.55	-	7.10	-	-	9.68	9.68
3	12-38	5	19	1.25	-	10.40	1.60	-	12.00	15.20
3	12-65	4	19	1.63	-	9.60	0.61	-	10.41	11.63
3	12-66	3	3	1.05	-	1.90	0.95	-	2.86	2.86
3	13-03	4	7	1.60	-	3.12	0.62	-	3.75	4.37
3	13-08	4	16	1.63	-	4.90	-	-	4.90	9.80

[a]Depth intervals: (1) 5-40 m; (2) 41-70 m; (3) 71-100 m.

[b]Species codes: CO, copper rockfish; QB, quillback rockfish; YE, yelloweye rockfish; LC, lingcod.

Table 2. Species composition of the catch, summarized by depth interval and site. N, number of records for that depth and site; NF, number of fish caught.

DEP[a]	SITE	N	NF	Proportion by species[b]				
				CO	QB	YE	LC	Tot RF
1	12-04	3	22	0.091	0.364	-	0.455	0.091
1	12-06	4	33	0.030	0.424	-	0.697	0.061
1	12-16	5	43	0.163	0.256	-	0.674	0.023
1	12-22	5	42	0.024	0.548	-	0.571	-
1	12-31	4	24	0.042	0.500	-	0.625	0.083
1	12-36	4	29	0.345	0.276	-	0.897	-
1	12-38	4	33	0.091	0.606	-	0.909	-
1	12-42	4	27	0.370	0.481	-	0.852	0.037
1	12-65	4	29	-	0.724	-	0.759	-
1	12-66	4	21	0.048	0.286	-	0.381	0.143
1	13-02	4	26	0.346	0.500	-	0.846	0.154
1	13-03	5	55	0.291	0.436	-	0.727	0.218
1	13-05	4	14	0.143	0.357	-	0.500	0.286
1	13-06	6	40	0.200	0.500	-	0.700	0.175
1	13-07	6	45	0.200	0.689	-	0.933	0.044
1	13-08	4	21	0.429	0.095	-	0.524	0.143
2	12-04	4	24	-	0.625	-	0.667	0.042
2	12-06	4	13	-	0.846	-	0.923	-
2	12-16	4	36	-	0.667	0.028	0.972	0.028
2	12-22	5	41	-	0.610	-	0.732	-
2	12-31	4	17	-	0.882	-	0.882	0.118
2	12-36	4	18	-	0.222	-	0.222	-
2	12-38	5	7	-	0.714	-	0.714	0.143
2	12-65	4	27	-	0.630	-	0.926	0.037
2	12-66	4	5	-	0.600	-	0.600	0.200
2	13-02	4	10	-	0.500	-	0.500	0.100
2	13-03	5	35	-	0.657	-	0.657	0.286
2	13-05	4	18	-	0.389	-	0.500	0.278
2	13-06	4	13	-	0.538	-	0.538	0.308
2	13-07	5	17	-	0.647	-	0.647	0.294
2	13-08	4	17	-	0.588	-	0.588	0.176
3	12-06	5	11	-	0.182	-	0.182	-
3	12-16	4	28	-	0.286	-	0.607	-
3	12-22	4	14	-	0.571	0.071	0.786	-
3	12-31	4	15	-	0.733	-	1.000	-
3	12-38	5	19	-	0.684	0.105	0.789	-
3	12-65	4	19	-	0.842	0.053	0.895	-
3	12-66	3	3	-	0.667	0.333	1.000	-
3	13-03	4	7	-	0.714	0.143	0.857	-
3	13-08	4	16	-	0.500	-	0.500	-

[a]Depth intervals: (1) 5-40 m; (2) 41-70 m; (3) 71-100 m.

[b]Species codes: CO, copper rockfish; QB, quillback rockfish; YE, yelloweye rockfish; RF, rockfish; LC, lingcod.

Table 3. Species composition and mean length with standard error and sample size for groundfish sampled from the sport fishery at Telegraph Cove, 16-24 June, 1987.

Species	% Comp.	Len (mm)	SE (mm)	N
Copper	10	336	31	6
Quillback	10	341	14	6
Yellowtail	26	361	18	16
Yelloweye	11	736	16	7
Black	5	395	10	3
Boccacio	2	686		1
Widow	2	651		1
Kelp green.	6	404	20	16
Lingcod	8	647	139	5
Total				61

Table 4. Mean lengths (cm) and weights (kg) with sample sizes and standard errors for major species caught in MSA 12 and 13. For quillback rockfish, means are given by depth and for the combined catch.

Species	Depth[a]	MSA 12						MSA 13					
		N	len	SE	N	wt	SE	N	len	SE	N	wt	SE
Copper	-	35	31.0	0.7	34	0.55	0.04	53	28.7	0.5	53	0.52	0.02
Yellowtail	-	58	33.4	0.5	58	0.57	0.03						
Quillback	1	133	29.6	0.5	133	0.52	0.02	95	25.8	0.4	95	0.35	0.02
Quillback	2	116	33.5	0.5	117	0.75	0.03	62	30.6	0.7	62	0.59	0.04
Quillback	3	58	37.6	0.6	58	1.04	0.05	13	34.0	1.6	13	0.83	0.11
Quillback	-	307	32.6	0.3	308	0.70	0.02	170	28.2	0.4	170	0.48	0.02
Black	-	15	50.1	1.3	15	1.99	0.11						
Kelp green	-	77	37.8	0.3				14	36.0	1.0			
Lingcod	-	16	59.0	0.5				55	46.4	1.1			

[a]Depths: (1) 5-40 m, (2) 41-70 m, (3) 71-100 m.

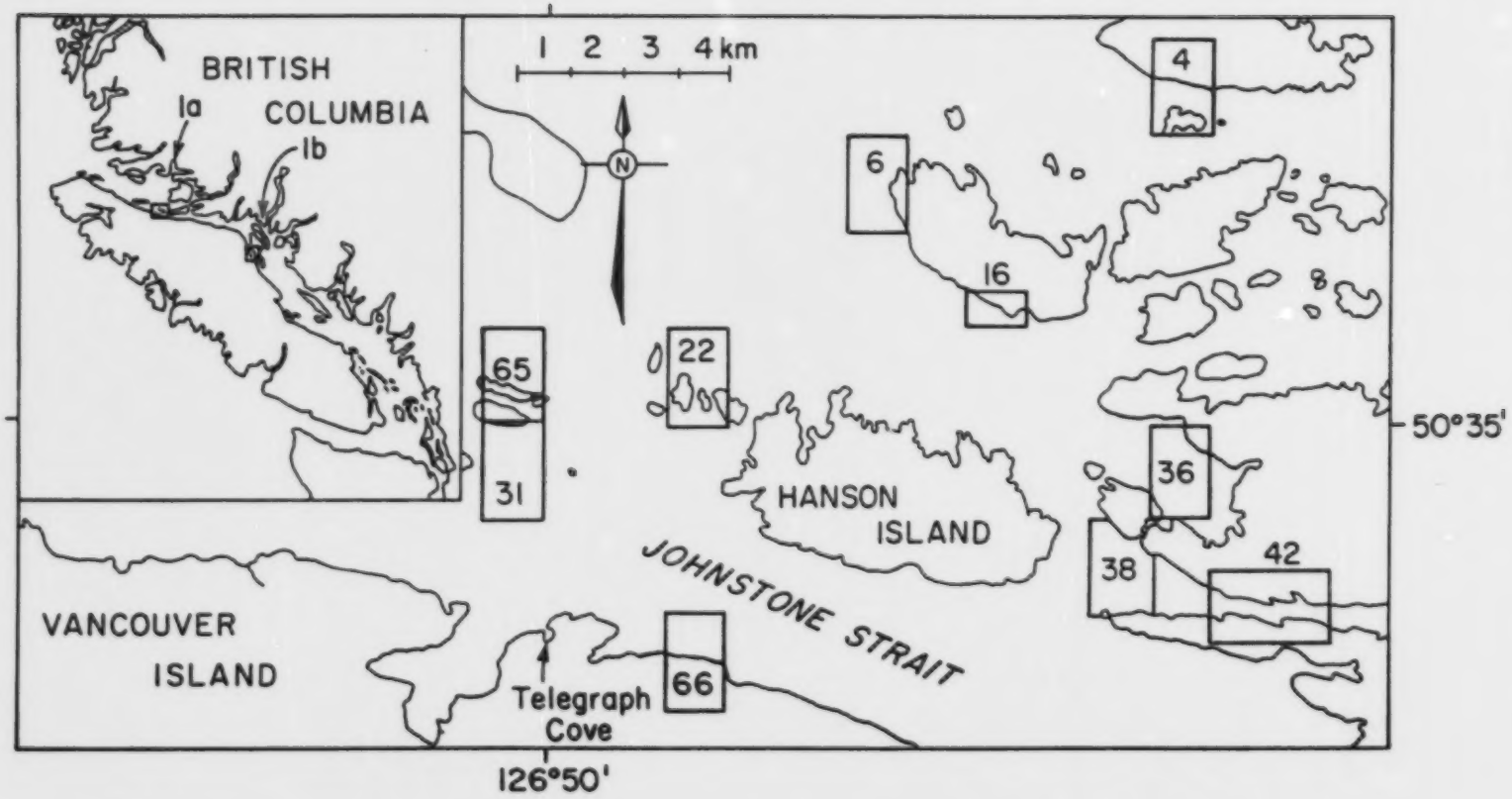


Fig. 1a. The location of study sites in MSA 12 (a) and MSA 13 (b). The inset in (a) shows the relationship of the two areas to Vancouver Island and mainland British Columbia.

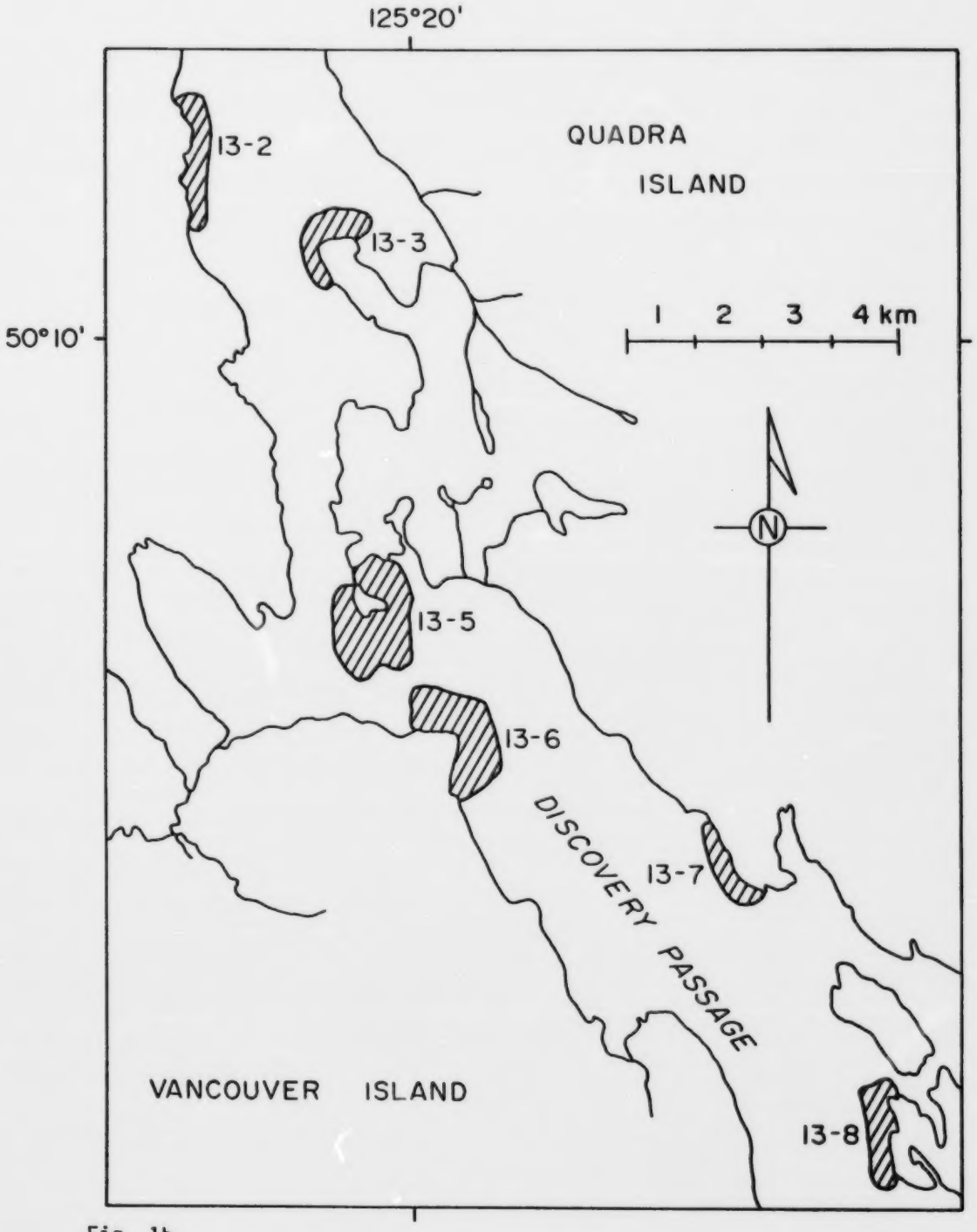

125°20'
50°10'
13-2
13-3
13-5
13-6
13-7
13-8
QUADRA
ISLAND
1 2 3 4 km
N
DISCOVERY PASSAGE
VANCOUVER ISLAND

Fig. 1b.

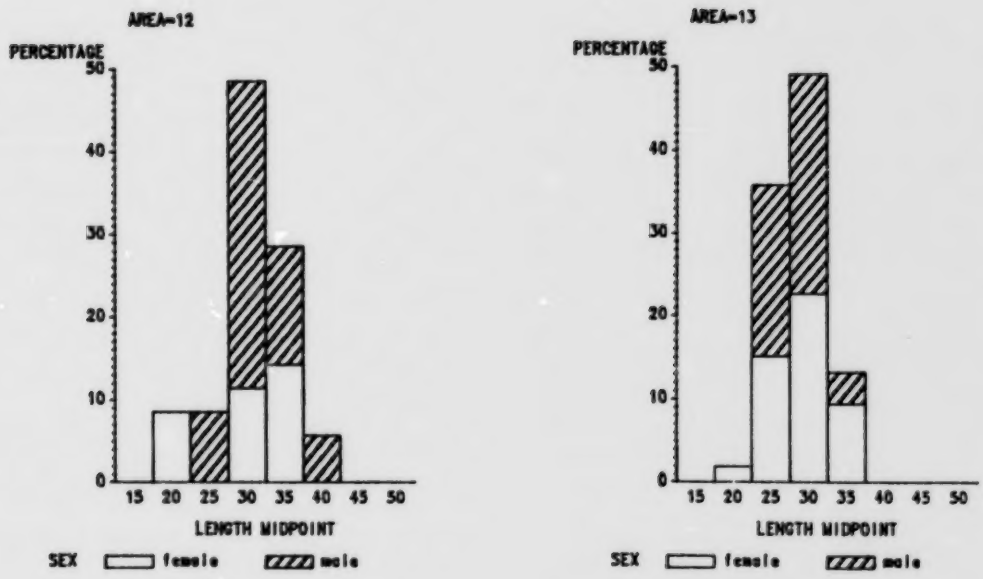


Fig. 2. Length-frequency histograms by sex for copper rockfish. (A) MSA 12. (B) MSA 13. Length (cm) is the midpoint of the size interval.

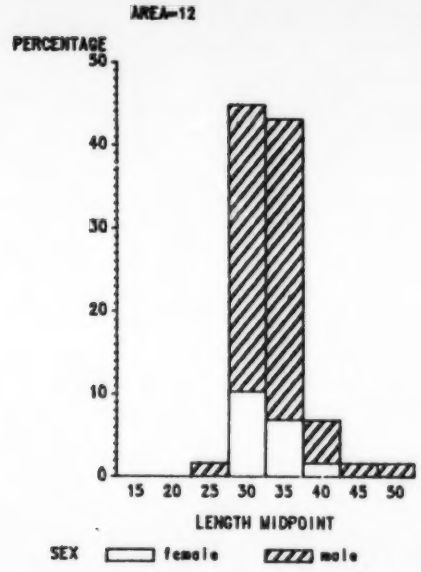


Fig. 3. Length-frequency histograms by sex for yellowtail rockfish caught in MSA 12. Length (cm) is the midpoint of the size interval.

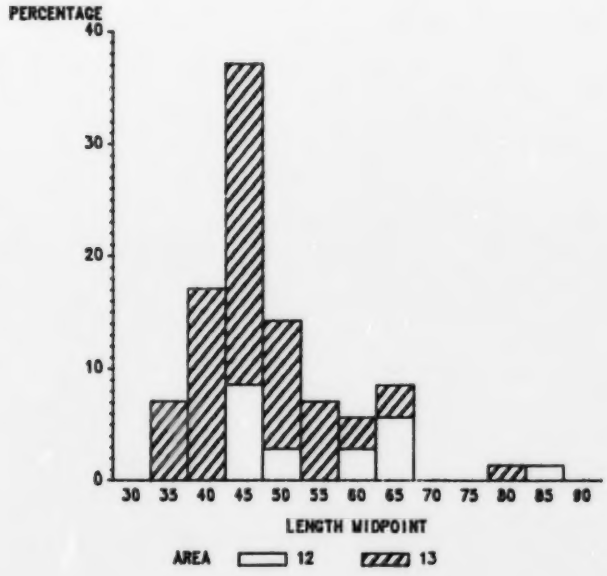


Fig. 4. Length-frequency histograms by area for lingcod. Length (cm) is the midpoint of the size interval.

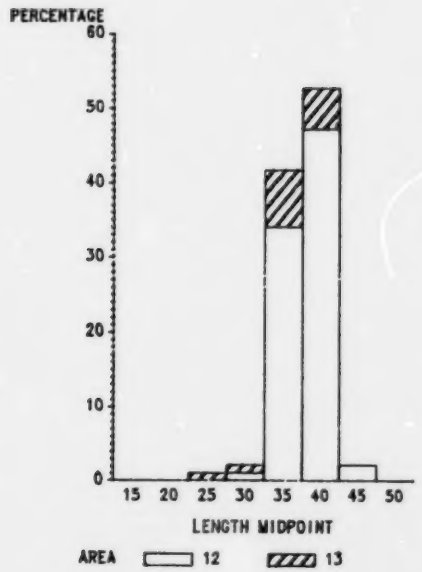


Fig. 5. Length-frequency histograms by area for kelp greenling. Length (cm) is the midpoint of the size interval.

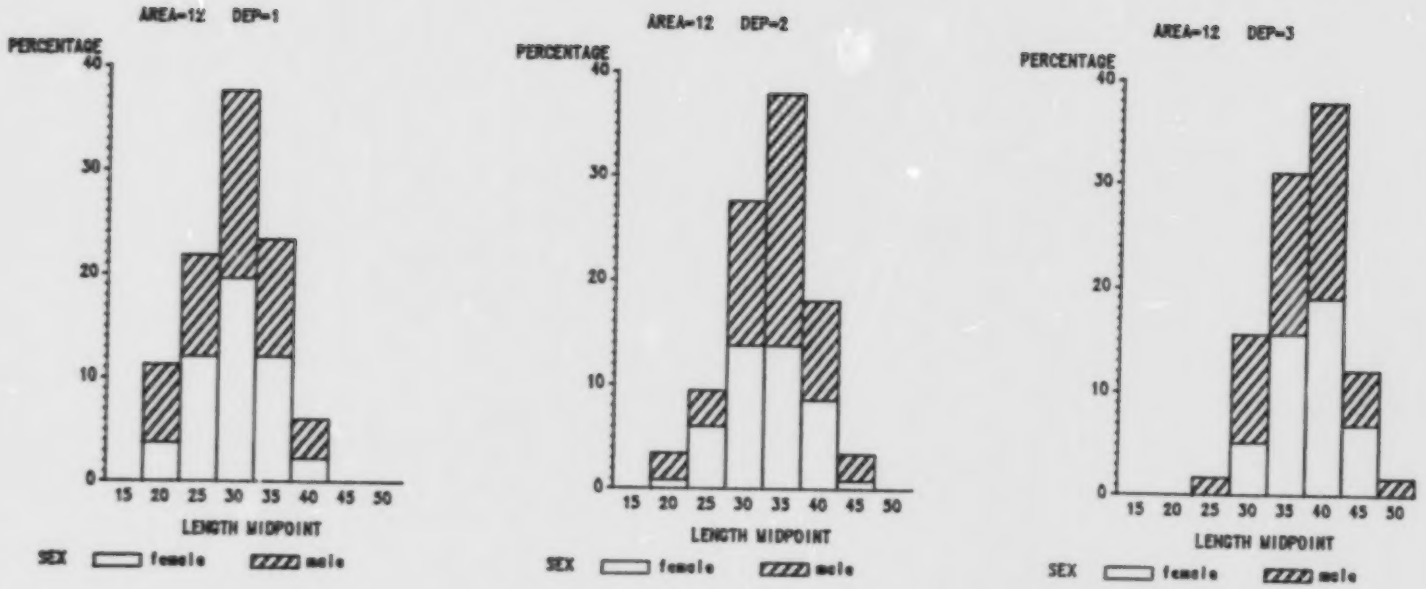
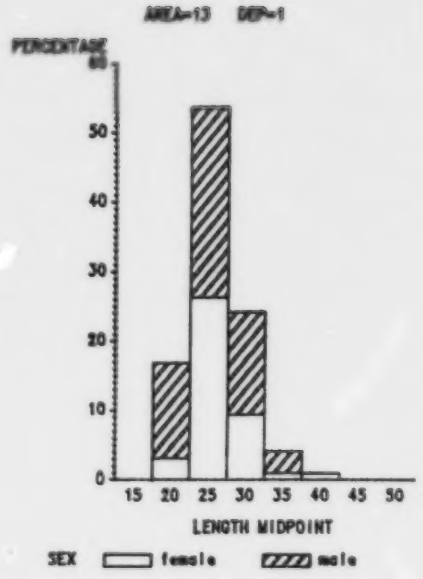
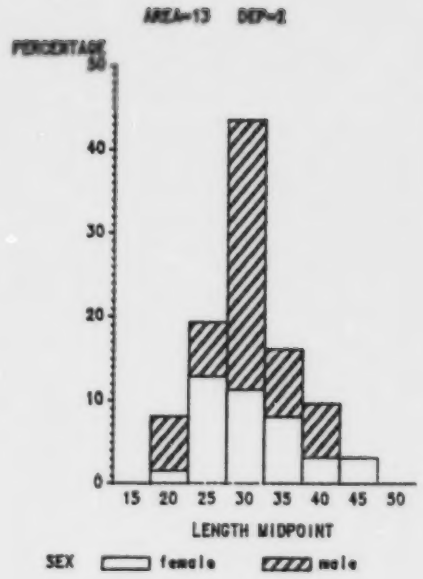


Fig. 6a. Length-frequency histograms by area and depth for quillback rockfish in MSA 12 (a) and MSA 13 (b). Length (cm) is the midpoint of the size interval. Depth: (1), 5-40 m; (2) 41-70 m; (3) 71-100 m.


AREA=13 DEP=1
PERCENTAGE
0
10
20
30
40
50
15 20 25 30 35 40 45 50
LENGTH MIDPOINT
SEX female male


AREA=13 DEP=2
PERCENTAGE
0
10
20
30
40
50
15 20 25 30 35 40 45 50
LENGTH MIDPOINT
SEX female male

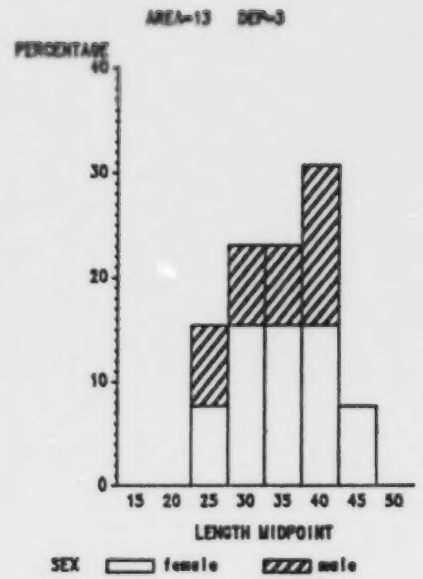

AREA=13 DEP=3
PERCENTAGE
0
10
20
30
40
15 20 25 30 35 40 45 50
LENGTH MIDPOINT
SEX female male

Fig. 6b.

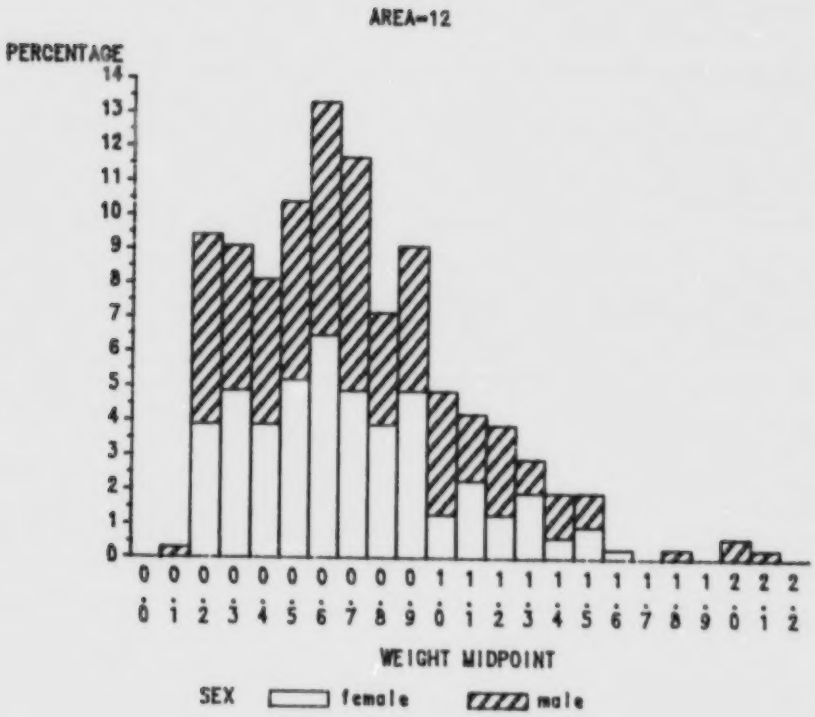


Fig. 7. Weight-frequency histograms by area for quillback rockfish in MSA 12 (a) and MSA 13 (b).

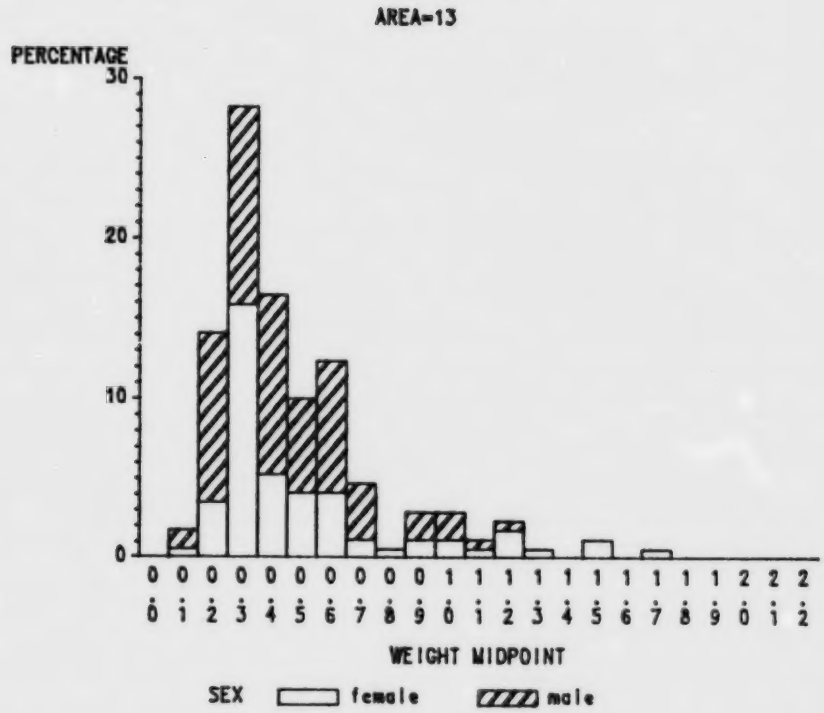

AREA=13
PERCENTAGE
30
20
10
0
0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2 2 2
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2
WEIGHT MIDPOINT
SEX
female
male

Fig. 7b.

Appendix table 1. Common names, two-letter species codes and scientific names of fish species caught during the survey.

Common name	Code	Scientific name
Spiny dogfish	DF	Squalus acanthias
Ratfish	RF	Hydolagus colliei
Pacific cod	PC	Gadus macrocephalus
Copper rockfish	CO	Sebastes caurinus
Dusky rockfish	DU	S. ciliatus
Widow rockfish	WI	S. entomelas
Yellowtail rockfish	YT	S. flavidus
Quillback rockfish	QB	S. maliger
Black rockfish	BL	S. melanops
Tiger rockfish	TI	S. nigrocinctus
Bocaccio	BO	S. paucispinis
Yelloweye rockfish	YE	S. ruberrimus
Kelp greenling	KG	Hexagrammos decagrammus
Lingcod	LC	Ophiodon elongatus
Unidentified sculpin	SC	Family Cottidae
Red Irish lord	RI	Hemilepidotus hemilepidotus
Brown Irish lord	BI	H. spinosus
Pacific staghorn sculpin	SS	Leptocottus armatus
Cabezon	CB	Scorpaenichthys marmoratus
Unidentified flatfish	FL	Family Pleuronectidae

Appendix table 2. Descriptions of codes for weather conditions, sea state, surface current, motor on or off, and tide used in Appendix table 3.

Code	Description
a) weather conditions	
1	bright
2	overcast
3	variable
4	rain
b) sea state	
1	calm
2	rippled
3	0.5 m chop
4	1.0 m chop
5	1.5 m chop
c) surface current	
1	nil
2	weak
3	moderate
4	strong
d) motor	
1	off - boat drifting
3	on to maintain position
e) tide	
1	low slack
2	flood
3	high slack
4	ebb

Appendix table 3. Summary of fishing conditions and species caught from each record. Columns are record number, date, site number, start time for each record, minimum depth, maximum depth, median depth, weather conditions (W), sea surface conditions (S), surface current (C), motor on or off (M), tide (T), total fishing time (EFF), vessel, and the number of each species caught.

a) MSA 12

REC	DATE	SITE	TIME	MIN	MAX	MED	W[a]	S[a]	C[a]	M[a]	T[a]	EFF	VES	SPECIES[b]																
				(m)	(m)	(m)						(h)		DF	RF	PC	CO	DU	WI	YT	QB	BL	TI	YE	KG	LC	SC	RI	BI	SS	FL
34	870616	12-31	0940	11	22	18	2	1	2	1	2	0.40	HSk	0	0	0	1	0	0	0	5	0	0	0	1	0	1	0	0	0	0
35	870616	12-31	1100	15	33	22	1	1	2	1	2	0.43	HSk	0	0	0	0	0	0	2	4	0	0	0	0	1	0	0	0	0	0
36	870616	12-31	1250	48	58	51	1	1	3	1	2	0.40	HSk	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
37	870616	12-31	1405	84	95	91	1	1	2	1	3	0.42	HSk	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
38	870616	12-31	1455	84	102	91	1	1	2	1	3	0.35	HSk	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
39	870616	12-31	1600	44	59	51	1	1	3	1	4	0.43	HSk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	870616	12-22	0945	8	35	20	2	2	3	1	2	0.20	Wha	0	0	0	1	0	0	0	3	0	0	0	8	0	0	0	0	0	0
41	870616	12-22	1053	41	70	57	1	1	3	1	2	0.23	Wha	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
42	870616	12-22	1225	8	25	17	1	1	3	1	2	0.33	Wha	0	0	0	0	0	0	0	8	0	0	0	3	0	0	0	0	0	0
43	870616	12-22	1328	71	100	80	1	1	2	1	2	0.33	Wha	2	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0
44	870616	12-22	1443	71	100	80	1	1	2	1	3	0.32	Wha	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
45	870616	12-22	1550	41	70	50	1	2	3	1	4	0.27	Wha	1	0	0	0	0	0	4	1	1	0	0	3	0	0	0	0	0	0
46	870617	12-66	0913	41	70	55	1	1	2	1	1	0.37	HSk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	860617	12-66	1032	71	100	73	1	1	2	1	1	0.38	HSk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	870617	12-66	1128	41	70	46	1	2	2	1	2	0.37	HSk	0	1	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0
49	870617	12-66	1240	71	100	77	1	2	2	1	2	0.37	HSk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	870617	12-66	1330	10	26	18	1	2	2	1	2	0.35	HSk	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	0
51	870617	12-66	1416	10	37	22	1	1	2	1	2	0.43	HSk	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0
52	870617	12-65	0850	41	67	55	1	1	2	1	4	0.30	Wha	0	0	0	0	0	1	0	5	6	1	0	0	0	0	0	0	0	0
53	870617	12-65	1025	10	35	25	1	1	2	1	4	0.40	Wha	1	0	0	0	0	0	1	5	0	0	0	2	0	0	0	0	0	0
54	870617	12-65	1110	71	100	90	1	1	2	1	4	0.42	Wha	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
55	870617	12-65	1245	41	55	45	1	1	2	1	1	0.40	Wha	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
56	870617	12-65	1335	15	35	27	1	1	2	1	2	0.42	Wha	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0
57	870617	12-65	1430	71	85	75	1	1	2	1	2	0.42	Wha	0	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0
58	870618	12- 4	0935	11	37	26	2	1	3	1	2	0.47	HSk	0	0	0	0	0	0	0	3	0	0	0	1	2	0	0	1	0	1
59	870618	12- 4	1045	42	48	55	1	1	2	1	3	0.42	HSk	1	0	1	0	0	0	1	3	0	0	0	0	0	0	0	1	0	0
60	870618	12- 4	1205	15	29	22	1	1	3	1	4	0.43	HSk	0	0	0	1	0	0	0	2	0	0	0	0	0	0	2	0	0	0
61	870618	12- 4	1245	48	59	52	1	1	2	1	4	0.40	HSk	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0

Appendix table 3 (cont'd)

a) MSA 12

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	T[a]	EFF (h)	VES	SPECIES[b] DF	RF	PC	CO	DU	WI	YT	QB	BL	TI	YE	KG	LC	SC	RI	BI	SS	FL
62	870618	12-16	1400	11	37	18	1	1	3	1	4	0.38	HSk	0	0	0	3	1	0	2	5	0	0	0	2	0	0	0	0	0	0
63	870618	12-16	1500	44	66	55	1	1	3	1	4	0.43	HSk	0	0	0	0	0	0	2	6	0	0	1	0	0	0	0	0	0	0
64	870618	12- 6	0844	41	60	55	2	1	2	1	4	0.35	Wha	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65[c]	870618	12- 6	0935	71	80	75	1	1	2	1	4	0.17	Wha	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	870618	12- 6	1015	10	25	20	1	1	1	1	1	0.42	Wha	0	0	0	0	0	0	0	4	1	0	0	2	1	0	0	0	0	0
67	870618	12- 6	1105	71	80	78	1	1	1	1	1	0.35	Wha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	870618	12- 6	1150	41	58	50	1	1	2	1	1	0.42	Wha	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
69	870618	12- 6	1243	71	86	79	1	1	2	1	2	0.33	Wha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	870618	12- 6	1315	15	25	20	1	1	2	1	2	0.42	Wha	0	0	0	0	0	0	0	4	5	0	0	0	0	0	0	0	0	0
71	870618	12-16	1427	45	65	50	1	2	3	1	2	0.35	HSk	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0
72	870618	12-16	1541	71	85	80	1	2	3	1	2	0.25	Wha	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
73	870619	12-42	0915	11	26	18	2	1	3	1	4	0.33	HSk	0	0	2	4	0	0	0	6	0	0	0	0	1	0	0	0	0	0
74	870619	12-38	1000	48	70	59	1	2	2	1	4	0.40	HSk	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
75	870619	12-38	1036	73	100	91	1	1	2	1	4	0.27	HSk	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
76	870619	12-38	1148	71	100	80	1	2	2	1	4	0.45	HSk	0	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0
77	870619	12-38	1250	44	59	51	1	2	2	1	1	0.38	HSk	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
78	870619	12-38	1345	11	18	20	2	2	3	1	2	0.35	HSk	0	0	0	2	0	0	1	4	0	0	0	1	0	0	0	0	0	0
79	870619	12-38	1442	11	40	18	1	2	3	1	2	0.40	HSk	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
80	870619	12-36	0835	10	15	12	2	1	1	1	3	0.38	Wha	0	0	0	2	0	0	4	1	0	0	0	0	0	0	0	0	0	0
81	870619	12-36	0920	45	55	50	3	1	2	1	4	0.33	Wha	5	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
82	870619	12-36	1015	10	25	20	3	1	2	1	4	0.37	Wha	0	0	0	2	0	0	3	3	0	0	0	1	0	0	0	0	0	0
83[c]	870619	12-36	1135	41	55	50	1	1	2	1	4	0.28	Wha	4	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0
84	870619	12-16	1245	71	90	78	1	3	3	1	4	0.37	Wha	1	0	1	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0
85	870619	12-16	1405	10	35	25	1	3	3	1	4	0.37	Wha	0	0	0	2	0	0	2	5	0	0	0	6	0	0	0	0	0	0
86	870620	12- 6	0848	41	70	55	4	1	3	3	2	0.42	HSk	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0	0
87	870620	12- 6	0935	15	26	22	4	2	3	1	4	0.38	HSk	0	0	0	0	0	0	0	4	1	0	0	2	1	0	0	0	0	0
88	870620	12- 6	1020	77	91	84	4	2	3	3	3	0.42	HSk	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
89	870620	12- 6	1114	41	59	51	3	3	3	3	4	0.37	HSk	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
90	870620	12- 6	1141	15	40	29	2	2	3	1	4	0.42	HSk	0	0	0	1	0	0	1	2	0	0	0	4	0	0	0	0	0	0
91	870620	12-22	1250	42	55	48	3	2	3	1	4	0.38	HSk	0	0	0	0	0	0	0	7	0	0	0	3	0	0	0	0	0	0
92	870620	12-22	1355	10	20	15	4	2	2	1	4	0.40	HSk	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0

Appendix table 3 (cont'd)

a) MSA 12

REC	DATE	SITE	TIME	MIN	MAX	MED	W[a]	S[a]	C[a]	M[a]	T[a]	EFF	VES	SPECIES[b]																
				(m)	(m)	(m)						(h)		DF	RF	PC	CO	DU	WI	YT	QB	BL	TI	YE	KG	LC	SC	RI	BI	SS	FL
93	870620	12-22	1430	48	66	55	2	1	2	1	4	0.33	HSk	1	0	0	0	0	0	0	9	0	0	0	3	0	0	0	0	0
94	870620	12-22	1535	18	37	22	2	1	3	3	4	0.37	HSk	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0
95	870621	12-65	0900	22	33	26	2	1	2	1	3	0.40	HSk	0	0	0	0	0	0	0	6	0	0	0	1	0	0	0	0	0
96	870621	12-65	1005	48	63	55	2	1	3	1	4	0.42	HSk	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0
97	870621	12-65	1225	44	57	51	2	1	3	3	4	0.40	HSk	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
98	870621	12-65	1335	11	37	26	2	1	3	1	4	0.42	HSk	0	0	0	0	0	0	0	7	0	0	0	1	0	0	0	0	0
99	870621	12-65	1445	81	97	92	2	1	3	1	4	0.42	HSk	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
100	870621	12- 4	0842	41	60	50	3	2	3	3	2	0.37	Wha	0	0	0	0	0	0	0	5	0	0	0	2	1	0	0	0	0
101	870621	12- 4	0951	10	35	15	2	2	4	1	4	0.38	Wha	0	0	2	1	0	0	0	3	0	0	0	3	0	0	0	0	0
102	870621	12- 4	1047	41	55	50	2	2	4	3	4	0.33	Wha	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0
103	870621	12-16	1146	10	35	20	2	2	3	1	4	0.40	Wha	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0
104	870621	12-16	1255	12	32	21	2	2	3	1	4	0.38	Wha	0	0	2	1	0	0	4	0	0	0	0	0	1	0	0	0	0
105	870621	12-16	1354	42	58	50	2	2	3	3	4	0.28	Wha	0	0	0	0	0	0	5	9	0	0	0	0	0	0	0	0	0
106	870622	12-31	1240	18	40	28	3	2	1	1	2	0.43	HSk	0	0	0	0	0	0	0	1	0	0	0	3	1	0	0	0	0
107	870622	12-31	1355	46	62	55	3	2	3	1	4	0.42	HSk	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
108	870622	12-31	1500	74	99	85	3	1	2	1	4	0.42	HSk	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
109	870622	12-31	1620	44	55	48	3	1	3	1	4	0.42	HSk	0	0	0	0	0	0	0	5	0	0	0	0	2	0	0	0	0
110	870622	12-31	1725	18	29	22	2	1	1	1	4	0.38	HSk	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0
111[c]	870622	12-38	0830	71	83	80	1	1	1	1	1	0.08	Wha	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	870622	12-38	0902	42	68	55	1	1	2	1	2	0.35	Wha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	870622	12-38	0953	42	64	45	2	2	2	1	2	0.43	Wha	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
114	870622	12-38	1055	71	75	72	2	2	4	1	2	0.07	Wha	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
115	870622	12-38	1130	15	20	18	2	1	2	1	4	0.38	Wha	0	0	0	1	0	0	1	6	0	0	0	1	0	0	0	0	0
116	870622	12-38	1223	10	30	14	3	1	1	1	4	0.32	Wha	0	0	0	0	0	0	5	5	0	0	0	1	0	0	0	0	0
117	870622	12-42	1355	10	17	15	3	2	4	1	4	0.42	Wha	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
118	870622	12-42	1437	11	15	13	3	2	3	1	4	0.35	Wha	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0
119	870622	12-38	1520	79	99	90	3	2	3	3	4	0.38	Wha	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
120	870623	12-66	1000	71	100	85	1	1	2	1	1	0.30	HSk	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0
121	870623	12-66	1114	41	70	57	1	1	3	1	2	0.38	HSk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	870623	12-66	1238	10	40	22	2	2	2	1	3	0.38	HSk	0	0	0	0	0	0	1	2	0	0	0	3	0	0	0	0	0

Appendix table 3 (cont'd)

a) MSA 12

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	T[a]	EFF (h)	VES	SPECIES[b] DF	RF	PC	CO	DU	WI	YT	QB	BL	TI	YE	KG	LC	SC	RI	BI	SS	FL
123	870623	12-66	1338	41	70	49	1	1	2	1	3	0.38	HSk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	870623	12-66	1429	10	27	22	1	1	1	1	4	0.40	HSk	0	0	0	0	0	0	0	2	0	0	0	3	2	0	0	0	0	0
125	876023	12-22	1538	71	97	79	1	1	2	1	4	0.30	HSk	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
126	870623	12-22	1643	18	27	20	1	2	2	1	4	0.18	HSk	0	0	0	0	0	0	0	9	0	0	0	1	0	0	0	0	0	0
127	870623	12-16	0845	72	90	78	1	1	2	1	4	0.40	Wha	2	0	2	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0
128	870623	12-16	1005	71	93	85	1	2	2	1	4	0.38	Wha	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
129	870623	12-16	1110	41	68	55	1	2	2	1	4	0.40	Wha	0	0	0	0	0	0	1	5	0	0	0	0	1	0	0	0	0	0
130	870623	12-16	1245	10	26	14	1	2	2	1	4	0.40	Wha	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
131	870623	12-36	1345	10	16	14	1	3	3	1	4	0.42	Wha	0	0	0	3	0	0	0	2	0	0	0	1	0	0	0	0	0	0
132[c]	870623	12-36	1430	47	53	50	1	3	3	1	4	0.12	Wha	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	870623	12-42	1450	10	15	11	1	3	3	1	4	0.38	Wha	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
134	870623	12-65	1600	71	100	85	1	3	3	1	4	0.38	Wha	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
135	870624	12-22	0848	71	97	86	1	1	2	1	1	0.43	HSk	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0
136	870624	12-22	1035	41	51	46	1	2	2	1	2	0.33	HSk	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
137	870624	12-31	0825	71	82	72	1	1	3	1	2	0.37	Wha	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
138[c]	870624	12- 6	1005	82	84	82	1	1	2	1	1	0.12	Wha	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	870624	12-38	1045	55	80	70	1	3	3	1	4	0.15	Wha	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
140[c]	870624	12-36	1125	43	56	46	1	3	2	1	2	0.20	Wha	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	870624	12-36	1150	15	25	20	1	2	2	1	2	0.40	Wha	0	0	0	3	0	0	1	2	0	0	0	0	0	0	0	0	1	0
													Total	43	1	15	36	1	1	59	315	16	1	6	78	18	1	5	2	1	1

Appendix table 3 (cont'd)

b) MSA 13

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	T[a]	EFF (h)	VES	SPECIES[b] DF	PC	CO	QB	TI	YE	KG	LC	RI	CB
1	870602	13-8	0630	11	15	13	1	1	3	1	3	0.60	HSk	0	0	3	0	0	0	0	1	0	0
2	870602	13-8	0705	73	79	77	1	1	3	1	3	0.40	HSk	4	0	0	0	0	0	0	0	1	0
3	870602	13-8	0800	44	59	51	1	1	3	1	3	0.48	HSk	2	0	0	3	0	0	0	1	0	0
4	870602	13-8	0852	80	84	82	1	2	3	1	4	0.42	HSk	0	0	0	2	0	0	0	0	0	0
5	870602	13-8	0915	48	69	59	1	1	2	1	3	0.45	HSk	1	0	0	4	0	0	0	0	1	0
6	870602	13-7	1028	48	66	59	1	1	1	1	3	0.40	HSk	1	0	0	1	0	0	0	0	0	0
7	870602	13-7	1102	11	24	15	1	1	3	1	4	0.55	HSk	0	0	1	6	1	0	0	0	0	0
8	870602	13-7	1133	44	69	60	1	2	3	1	4	0.45	HSk	0	0	0	4	0	0	0	1	0	0
9	870602	13-7	1230	10	13	11	1	2	3	1	4	0.45	HSk	0	0	2	3	0	0	0	0	0	0
10	870602	13-8	1314	10	11	11	1	2	3	3	4	0.42	HSk	0	0	3	1	0	0	1	0	1	0
11	870603	13-6	0647	41	70	15	1	2	3	1	2	0.30	HSk	1	0	0	0	0	0	0	1	0	0
12	870602	13-6	0755	10	40	22	1	1	2	1	3	0.45	HSk	0	0	1	4	0	0	1	1	0	0
13	870603	13-6	0833	41	70	55	1	2	2	1	3	0.40	HSk	0	0	0	3	0	0	0	1	0	0
14	870603	13-6	0940	18	36	29	1	2	2	1	2	0.40	HSk	0	0	0	4	0	0	1	0	1	0
15	870603	13-5	1005	46	64	55	1	2	4	3	4	0.43	HSk	1	0	0	2	1	0	0	3	0	0
16	870603	13-5	1106	46	70	54	1	2	3	1	3	0.38	HSk	0	0	0	0	0	0	0	0	0	0
17	870603	13-5	1135	10	26	18	1	2	3	3	4	0.40	HSk	0	0	0	2	0	0	0	1	0	1
18	870603	13-5	1208	15	33	22	1	2	3	3	4	0.40	HSk	0	0	0	1	0	0	1	2	0	0
19	870603	13-7	1259	41	59	51	1	1	2	1	4	0.37	HSk	0	0	0	1	0	0	0	2	0	0
20	870603	13-7	1329	15	37	33	1	1	1	1	4	0.40	HSk	0	0	0	4	0	0	0	1	0	0
21	870603	13-8	1426	44	55	51	1	2	4	3	4	0.38	HSk	0	0	0	2	0	0	0	2	0	0
22	870603	13-8	1513	5	22	9	1	2	2	1	4	0.38	HSk	0	0	1	0	0	0	1	2	0	0
23	870604	13-5	0713	41	70	66	1	2	3	3	2	0.38	HSk	0	0	0	3	1	0	2	2	0	0
24	870604	13-5	0810	48	66	55	1	2	2	1	2	0.45	HSk	1	0	0	2	0	0	0	0	0	0
25	870604	13-5	0832	15	40	33	1	1	2	1	2	0.47	HSk	0	0	0	1	0	0	1	0	0	0
26	870604	13-5	0900	10	18	15	1	1	2	1	2	0.45	HSk	0	0	2	1	0	0	0	1	0	0
27	870604	13-6	0948	15	15	15	1	2	2	1	2	0.50	HSk	0	0	4	1	0	0	0	1	0	0
28	870604	13-6	1022	41	70	55	1	2	3	1	2	0.48	HSk	0	0	0	0	0	0	0	2	0	0
29	870604	13-6	1131	44	66	55	2	2	2	1	3	0.50	HSk	0	0	0	2	0	0	0	1	0	0
30	870604	13-6	1223	10	40	18	2	2	1	1	3	0.55	HSk	0	0	0	10	0	0	0	2	1	0

Appendix table 3 (cont'd)

b) MSA 13

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	T[a]	EFF (h)	VES	SPECIES[b] DF	PC	CO	QB	TI	YE	KG	LC	RI	CB
31	870604	13-8	1325	73	99	88	2	1	2	1	4	0.38	HSk	3	0	0	2	0	0	0	0	0	0
32	870605	13-7	0632	7	18	18	2	1	2	1	1	0.55	HSk	0	0	2	2	1	0	0	1	0	0
33	870605	13-7	0713	51	62	55	2	3	3	3	1	0.40	HSk	0	0	0	4	0	0	0	0	0	0
142	870721	13-3	0928	15	37	22	3	3	3	1	1	0.45	HSk	0	0	1	2	0	0	0	0	0	0
143	870721	13-3	1008	41	70	55	1	3	3	1	2	0.45	HSk	0	1	0	2	0	0	0	3	0	0
144	870721	13-3	1345	22	37	27	1	3	3	1	2	0.25	HSk	0	0	4	6	0	0	0	4	0	0
144	870721	13-3	1345	41	70	55	1	3	2	1	2	0.25	HSk	0	0	0	0	0	0	0	1	0	0
145	870721	13-3	1427	41	70	55	1	2	2	1	2	0.37	HSk	0	0	0	5	0	0	1	1	0	0
146	870721	13-3	1520	88	100	97	1	2	2	1	2	0.35	HSk	1	0	0	0	0	0	0	0	0	0
147	870721	13-3	1550	71	100	86	1	2	2	1	3	0.42	HSk	0	0	0	2	0	0	0	0	0	0
148	870721	13-2	1712	10	26	18	1	2	3	1	3	0.43	HSk	0	0	1	4	0	0	0	1	0	0
149	870721	13-2	1807	41	70	59	1	2	2	1	3	0.38	HSk	0	0	0	0	0	0	0	0	0	0
150	870721	13-2	1830	15	37	26	1	1	2	1	4	0.42	HSk	0	0	1	3	0	0	0	0	0	0
151	870722	13-2	0823	10	37	27	1	3	3	3	1	0.38	HSk	0	0	5	3	0	0	0	3	0	0
152	870722	13-2	0906	48	59	55	1	2	3	3	1	0.42	HSk	0	1	0	2	0	0	0	1	0	0
153	870722	13-2	0940	41	70	63	1	3	3	3	2	0.42	HSk	0	0	0	0	0	0	0	0	0	0
154	870722	13-2	1025	44	66	55	1	2	2	1	2	0.47	HSk	2	0	0	3	0	0	1	0	0	0
155	870722	13-2	1105	10	37	18	1	1	2	1	2	0.45	HSk	0	0	2	3	0	0	0	0	0	0
156	870722	13-3	1255	33	40	37	3	2	3	1	2	0.20	HSk	1	0	0	6	0	0	0	6	0	0
157	870722	13-3	1403	15	37	26	1	2	3	1	2	0.27	HSk	0	0	4	7	0	0	1	2	1	0
158	870722	13-3	1450	15	33	22	1	2	3	1	2	0.30	HSk	0	0	7	3	0	0	0	0	0	0
159	870722	13-3	1530	41	70	56	3	3	3	1	2	0.32	HSk	0	0	0	9	0	0	0	4	0	0
160	870722	13-3	1615	80	100	91	3	3	3	3	2	0.42	HSk	0	0	0	1	0	1	0	0	0	0
161	870722	13-3	1645	77	100	91	3	2	3	1	3	0.42	HSk	0	0	0	2	0	0	0	0	0	0
162	870722	13-3	1721	44	70	59	1	2	4	3	4	0.47	HSk	0	0	0	7	0	0	0	1	0	0
163	870723	13-6	0930	10	16	15	1	1	2	1	1	0.42	HSk	0	0	3	1	0	0	0	2	0	0
164	870723	13-6	1005	41	70	55	1	1	2	1	1	0.42	HSk	1	0	0	2	0	0	1	0	0	0
165	870723	13-8	1148	41	70	59	1	2	3	1	2	0.43	HSk	0	0	0	1	0	0	0	0	0	0

Appendix table 3 (cont'd)

b) MSA 13

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	T[a]	EFF (h)	VES	SPECIES[b] DF	PC	CO	QB	TI	YE	KG	LC	RI	CB
166	870723	13-8	1229	4	18	15	1	2	3	1	2	0.47	HSk	2	0	2	1	0	0	2	0	0	0
167	870723	13-7	1332	7	40	18	1	1	4	1	2	0.28	HSk	0	0	2	9	0	0	1	0	0	0
168	870723	13-7	1405	11	40	18	1	1	4	1	2	0.32	HSk	0	0	2	7	0	0	0	0	0	0
169	870723	13-7	1433	41	70	51	1	1	3	1	2	0.45	HSk	0	0	0	1	0	0	0	2	0	0
170	870723	13-8	1652	71	100	80	1	2	3	1	3	0.43	HSk	0	0	0	4	0	0	0	0	0	0
													Total	21	2	531	71	4	1	15	60	6	1

[a]Codes are described in Appendix table 2.

[b]Codes for species names are described in Appendix table 1.

[c]Fishing aborted due to dogfish catch.

Appendix table 4. Codes used to describe rockfish maturity stages, from Nagtegaal and Farlinger (1980), based on maturity stages described by Westrheim (1975).

MATURITY CODE	GONAD CONDITION
0	unknown
1	immature (translucent; males,stringlike; females small)
Females	
2	mature (small, yellow eggs; translucent or opaque)
3	mature (large, orange-yellow eggs; opaque)
4	fertilized (large, orange-yellow eggs; translucent)
5	embryos or larvae (include eyed eggs)
6	spent (large, flaccid, red ovaries. A few larvae may be present)
7	resting (moderate size, firm, red-grey ovaries)
8	resorbing
Males	
2	maturing (stringlike, translucent, white)
3	developing (swelling, brown-white)
4	developed (large, white; easily broken)
5	running (running sperm)
6	spent (flaccid, red)
7	resting (ribbon-like; small, brown)

Appendix table 5a. Date, site, depth, sex, fork length (mm), weight (g), maturity and fish number for landed rockfish catch. Data are sorted by species, sex and length. A fish number indicates that otoliths were collected.

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(a) copper rockfish							
870602	13- 7	11	1	234	194	1	498
870604	13- 5	15	1	236	242	7	503
870602	13- 6	22	1	237	233	1	501
870723	13- 7	18	1	242	280	7	579
870721	13- 2	18	1	245	250	1	546
870722	13- 2	18	1	256	270	7	570
870722	13- 3	22	1	257	330	1	563
870622	12- 42	15	1	262	310	7	536
870604	13- 6	15	1	266	328	7	505
870722	13- 2	27	1	266	340	7	557
870602	13- 8	13	1	270	351	7	495
870619	12- 42	18	1	270	325	1	520
870619	12- 16	25	1	270	310	1	528
870722	13- 2	27	1	272	360	1	556
870604	13- 6	15	1	282	368	7	506
870721	13- 3	27	1	285	450	1	549
870619	12- 16	25	1	289	460	7	529
870722	13- 3	26	1	290	440	1	566
870618	12- 16	18	1	292	510	7	513
870619	12- 42	18	1	296	430	7	518
870723	13- 7	18	1	296	490	7	577
870616	12- 22	20	1	298	440	7	511
870604	13- 6	15	1	300	496	7	507
870621	12- 4	15	1	300	525	7	532
870603	13- 8	9	1	301	486	7	500
870604	13- 6	15	1	305	492	7	504
870722	13- 3	22	1	305	440	1	564
870721	13- 3	27	1	306	400	7	548
870622	12- 38	18	1	309	575	7	533
870723	13- 6	15	1	309	480	1	571
870602	13- 7	11	1	310	436	7	499
870602	13- 8	11	1	310	427	7	493
870602	13- 8	11	1	310	555	7	491
870621	12- 16	21	1	310	550	7	531
870622	12- 42	13	1	310	480	7	538[c]
870623	12- 16	14	1	310	510	7	543
870623	12- 36	14	1	310	480	7	540
870723	13- 6	15	1	312	510	1	573
870622	12- 42	15	1	316	475	7	535
870619	12- 42	18	1	321	550	7	519

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(a) copper rockfish							
870624	12- 36	20	1	324		7	542
870623	12- 42	11	1	328	600	7	538[c]
870605	13- 7	18	1	332	625	7	508
870723	13- 8	15	1	341	680	7	574
870619	12- 36	20	1	352	910	7	526
870623	12- 36	14	1	355	750	7	541
870622	12- 42	15	1	364	850	7	534
870618	12- 4	22	1	365	870	7	516
870623	12- 36	14	1	380	1125	7	539
870619	12- 36	20	1	388	940	7	527
870619	12- 38	20	2	216	160	1	523
870620	12- 6	29	2	216	210	1	530
870721	13- 3	22	2	222	170	1	552
870622	12- 42	13	2	224	225	7	537
870722	13- 3	22	2	233	240	1	561
870722	13- 3	26	2	234	225	1	565
870722	13- 3	22	2	235	240	1	558
870722	13- 3	22	2	246	300	1	560
870722	13- 2	27	2	248	240	1	555
870722	13- 3	22	2	251	350	7	562
870723	13- 7	18	2	253	270	1	576
870723	13- 7	18	2	265	290	1	578
870722	13- 3	22	2	278	425	7	559
870605	13- 7	18	2	279	390	7	509
870602	13- 8	13	2	280	293	7	494
870619	12- 42	18	2	281	410	7	517
870604	13- 5	15	2	282	372	7	502
870602	13- 8	13	2	290	390	7	496
870624	12- 36	20	2	297	510	7	544
870618	12- 16	18	2	298	460	7	514
870722	13- 3	26	2	300	475	7	567
870723	13- 8	15	2	302	480	7	575
870619	12- 38	20	2	307	475	7	522
870722	13- 2	27	2	307	450	7	553
870723	13- 6	15	2	309	475	1	572
870721	13- 2	26	2	316	525	7	547
870722	13- 2	27	2	320	500	7	554
870722	13- 2	18	2	324	640	7	569
870619	12- 36	12	2	329	640	7	525
870618	12- 16	18	2	333	705	7	515
870616	12- 31	18	2	334	575	7	510

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(a) copper rockfish							
870619	12- 36	12	2	340	650	7	524
870721	13- 3	27	2	343	660	7	551
870721	13- 3	27	2	344	770	7	550
870602	13- 7	15	2	349	645	7	497
870602	13- 8	11	2	350	745	7	492
870624	12- 36	20	2	362	775	7	545
870722	13- 3	26	2	364	860	7	568
870617	12- 66	18	2	445[d]	557	7	512
(b) dusky rockfish							
870618	12- 16	18	1	290	500	1	
(c) widow rockfish							
870617	12- 65	55	1	396	790	7	
(d) yellowtail rockfish							
870621	12- 16	21	1	252	575	7	1268
870622	12- 38	18	1	285	380	1	1270
870621	12- 16	50	1	290	425	1	1262
870619	12- 36	12	1	294	400	1	1246
870623	12- 16	78	1	297	425	1	1280
870619	12- 38	20	1	300	350	7	1256
870619	12- 36	12	1	306	460	1	1247
870622	12- 38	14	1	307	475	1	1274
870623	12- 16	55	1	308	430	1	1276
870620	12- 6	29	1	313	410	1	1258
870620	12- 6	55	1	314	430	1	1257
870623	12- 16	78	1	314	435	1	1277
870618	12- 16	50	1	316	510	1	1238
870618	12- 16	55	1	317	540	1	1240
870619	12- 36	20	1	317	480	1	1251
870621	12- 16	50	1	318	460	1	1263
870616	12- 22	50	1	319	450	1	1230
870623	12- 16	78	1	321	520	1	1278
870619	12- 36	12	1	322	520	7	1248
870621	12- 16	21	1	322	490	1	1269
870616	12- 22	50	1	324	510	1	1232
870617	12- 65	25	1	326	450	1	1235
870619	12- 36	20	1	326	475	7	1252
870618	12- 16	55	1	329	580	7	1239
870619	12- 36	12	1	330	525	1	1249
870622	12- 38	14	1	331	625	1	1275
870616	12- 22	50	1	332	500	7	1229
870621	12- 16	50	1	332	530	7	1259
870616	12- 31	22	1	333	525	7	1225

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(d) yellowtail rockfish							
870616	12- 22	50	1	335	450	7	1231
870624	12- 36	20	1	335	450	1	1282
870619	12- 16	78	1	336	475	7	1255
870619	12- 36	20	1	340	610	1	1250
870619	12- 16	78	1	340	580	7	1253
870619	12- 16	25	1	340	520	7	1245
870621	12- 16	21	1	342	580	1	1266
870619	12- 16	25	1	349	600	7	1244
870621	12- 16	20	1	350	630	1	1264
870616	12- 31	22	1	355	575	7	1226
870618	12- 4	55	1	360	650	1	1243
870618	12- 16	80	1	360	725	7	1236
870618	12- 16	50	1	368	820	7	1237
870618	12- 16	18	1	382	800	1	1241
870616	12- 22	80	1	410	870	7	1234
870621	12- 16	20	1	410	860	1	1265
870618	12- 16	18	1	455	1450	7	1242
870616	12- 22	80	1	495	1520	1	1233
870623	12- 66	22	2	280	325	1	1281
870622	12- 38	14	2	281	375	1	1272
870622	12- 38	14	2	306	480	1	1273
870621	12- 16	21	2	313	450	1	1267
870619	12- 16	78	2	320	450	7	1254
870623	12- 16	78	2	320	475	1	1279
870621	12- 16	50	2	336	540	1	1261
870622	12- 38	14	2	337	625	7	1271
870621	12- 16	50	2	340	580	1	1260
870616	12- 31	91	2	371	700	1	1228
870616	12- 31	91	2	405	770	1	1227
(e) quillback rockfish							
870623	12- 22	20	1	191	110	1	1869
870722	13- 2	55	1	192	120	1	1968
870723	13- 7	18	1	192	150	1	1990
870618	12- 6	50	1	197	190	7	1685
870619	12- 38	20	1	197	200	1	1722
870620	12- 22	55	1	202	190	1	1735
870722	13- 3	26	1	204	160	1	1951
870722	13- 3	26	1	204	175	1	1950
870723	13- 7	18	1	204	170	1	1976
870722	13- 3	37	1	205	200	1	1958
870722	13- 2	18	1	206	140	1	1963
870603	13- 6	29	1	208	195	1	1140
870622	12- 38	18	1	208	200	1	1823
870723	13- 6	55	1	208	180	1	1973
870723	13- 7	18	1	210	180	1	1987

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870723	13- 7	18	1	214	225	7	1983
870621	12- 16	50	1	215	225	1	1777
870722	13- 2	55	1	216	160	1	1967
870623	12- 22	20	1	217	205	7	1875
870623	12- 42	11	1	218	175	1	1853
870723	13- 7	18	1	218	220	1	1982
870619	12- 38	20	1	219	225	1	1720
870722	13- 3	26	1	219	225	1	1956
870619	12- 38	18	1	220	200	1	1724
870619	12- 16	25	1	220	230	1	1688
870621	12- 65	26	1	220	175	1	1803
870721	13- 3	27	1	220	250	1	1906
870616	12- 31	18	1	221	210	7	1188
870723	13- 7	51	1	221	200	1	1991
870603	13- 5	22	1	224	285	1	1147
870604	13- 5	33	1	225	194	1	1174
870621	12- 4	50	1	225	200	1	1766
870721	13- 3	22	1	226	230	1	1901
870723	13- 7	18	1	227	250	1	1979
870619	12- 36	20	1	228	300	1	1699
870618	12- 4	55	1	229	230	1	1662
870620	12- 22	48	1	231	250	1	1743
870722	13- 2	27	1	232	190	1	1925
870604	13- 6	18	1	233	232	1	1171
870604	13- 6	18	1	235	289	1	1164
870616	12- 31	18	1	235	240	1	1190
870603	13- 6	29	1	236	266	1	1142
870619	12- 16	25	1	237	280	1	1686
870722	13- 2	55	1	239	210	1	1969
870617	12- 66	22	1	241	200	7	1622
870721	13- 2	18	1	242	275	1	1923
870619	12- 38	20	1	243	240	1	1723
870604	13- 8	88	1	244	290	7	1161
870721	13- 3	27	1	246	320	1	1904
870622	12- 42	13	1	247	275	1	1809
870723	13- 6	15	1	249	250	1	1971
870723	13- 7	18	1	250	325	1	1988
870602	13- 7	15	1	252	310	7	1112
870619	12- 16	25	1	252	330	1	1689
870623	12- 16	55	1	252	305	1	1848
870605	13- 7	18	1	253	320	7	1181
870602	13- 6	22	1	254	311	7	1138
870604	13- 6	15	1	254	338	1	1172

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870604	13- 6	18	1	254	326	1	1170
870602	13- 7	60	1	255	280	7	1122
870602	13- 7	11	1	255	289	7	1119
870619	12- 38	91	1	256	340	1	1714
870619	12- 42	18	1	258	350	1	1701
870721	13- 2	18	1	258	380	1	1924
870722	13- 3	22	1	258	300	1	1948
870603	13- 5	18	1	260	364	1	1145
870618	12- 16	18	1	261	275	1	1654
870616	12- 31	22	1	262	310	1	1194
870619	12- 42	18	1	262	375	1	1705
870624	12- 36	20	1	262	320	1	1888
870722	13- 2	27	1	262	290	1	1926
870618	12- 4	22	1	267	345	1	1658
870723	13- 7	18	1	268	370	1	1985
870603	13- 6	29	1	269	366	1	1141
870605	13- 7	55	1	270	390	7	1182
870722	13- 3	37	1	270	410	1	1957
870722	13- 3	37	1	271	460	1	1959
870722	13- 3	59	1	273	340	1	1934
870602	13- 7	15	1	274	344	7	1115
870623	12- 42	11	1	275	395	7	1852
870604	13- 6	18	1	276	422	7	1162
870721	13- 2	26	1	276	400	1	1920
870722	13- 3	22	1	276	360	1	1947
870618	12- 4	55	1	277	370	1	1661
870605	13- 7	55	1	278	430	7	1185
870605	13- 7	18	1	279	450	7	1180
870616	12- 22	17	1	279	350	7	1616
870618	12- 16	50	1	280	410	1	1672
870620	12- 22	48	1	280	425	1	1741
870723	13- 7	18	1	280	425	7	1986
870603	13- 6	55	1	281	425	1	1154
870619	12- 16	25	1	281	460	7	1687
870621	12- 16	50	1	281	490	1	1781
870604	13- 6	18	1	282	452	7	1163
870624	12- 36	20	1	282	440	7	1889
870619	12- 38	18	1	284	425	7	1717
870620	12- 22	55	1	284	425	7	1731
870722	13- 3	59	1	284	450	1	1935
870616	12- 31	18	1	285	390	7	1189
870623	12- 66	22	1	285	425	7	1863
870604	13- 5	55	1	288	469	7	1176
870603	13- 8	51	1	289	432	1	1156
870723	13- 7	18	1	289	500	7	1989

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870723	13- 7	18	1	214	225	7	1983
870603	13- 7	33	1	290	431	7	1152
870722	13- 3	56	1	290	440	1	1939
870620	12- 6	55	1	291	490	1	1754
870602	13- 8	59	1	293	479	1	1134
870616	12- 31	91	1	294	420	1	1602
870623	12- 22	20	1	294	525	7	1872
870722	13- 3	56	1	294	525	7	1942
870619	12- 36	12	1	295	530	1	1696
870618	12- 6	20	1	296	545	7	1676
870722	13- 3	59	1	298	450	1	1931
870602	13- 8	82	1	299	437	1	1127
870620	12- 22	55	1	299	420	1	1732
870721	13- 3	55	1	299	560	1	1915
870620	12- 22	55	1	301	560	1	1733
870622	12- 42	15	1	302	550	7	1812
870622	12- 31	55	1	304	495	7	1831
870617	12- 66	46	1	305	495	1	1625
870723	13- 7	18	1	305	610	7	1980
870602	13- 8	59	1	306	500	1	1133
870618	12- 16	55	1	306	715	7	1670
870619	12- 38	91	1	306	640	1	1709
870620	12- 6	22	1	306	530	1	1748
870619	12- 38	80	1	308	575	1	1707
870621	12- 65	26	1	308	660	7	1787
870623	12- 22	20	1	308	550	7	1871
870618	12- 6	20	1	309	580	7	1680
870623	12- 22	20	1	309	645	7	1868
870722	13- 3	56	1	309	540	7	1938
870602	13- 7	15	1	310	508	7	1116
870617	12- 65	75	1	310	525	1	1651
870723	13- 6	55	1	311	680	7	1972
870622	12- 31	48	1	312	550	7	1833
870722	13- 3	59	1	312	580	7	1933
870604	13- 6	18	1	314	585	7	1165
870605	13- 7	55	1	314	575	7	1184
870616	12- 22	20	1	314	520	7	1610
870624	12- 22	46	1	314	500	7	1879
870602	13- 8	11	1	315	502	1	1111
870603	13- 7	51	1	315	572	7	1148
870617	12- 65	45	1	315	560	7	1640
870618	12- 4	52	1	315	525	7	1657
870620	12- 6	51	1	315	560	7	1757

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870623	12- 66	85	1	315	480	1	1877
870721	13- 3	55	1	315	570	7	1910
870620	12- 22	22	1	316	600	7	1727
870604	13- 6	18	1	318	582	7	1166
870623	12- 16	14	1	318	510	7	1849
870616	12- 31	22	1	320	580	7	1192
870618	12- 6	20	1	320	745	7	1679
870616	12- 31	91	1	321	560	7	1604
870722	13- 2	55	1	321	590	7	1966
870723	13- 7	18	1	321	575	7	1975
870603	13- 5	55	1	322	601	7	1143
870616	12- 22	17	1	322	540	7	1612
870622	12- 42	15	1	322	730	7	1811
870618	12- 6	20	1	323	785	7	1681
870604	13- 5	66	1	324	715	7	1178
870616	12- 31	18	1	325	560	7	1186
870618	12- 4	26	1	325	640	7	1664
870622	12- 31	28	1	325	550	7	1828
870602	13- 7	60	1	326	592	7	1121
870619	12- 42	18	1	327	775	7	1700
870603	13- 5	55	1	329	645	7	1144
870622	12- 31	22	1	329	650	7	1827
870621	12- 65	26	1	330	640	7	1793
870621	12- 16	50	1	331	740	7	1775
870623	12- 22	20	1	332	650	7	1870
870621	12- 16	50	1	333	760	7	1780
870622	12- 38	18	1	333	660	7	1819
870604	13- 6	55	1	334	694	7	1158
870618	12- 16	55	1	334	710	7	1667
870616	12- 31	91	1	336	725	7	1603
870620	12- 6	55	1	337	675	7	1756
870602	13- 6	22	1	339	683	7	1135
870622	12- 31	48	1	340	750	7	1836
870618	12- 4	22	1	342	700	7	1659
870602	13- 6	22	1	344	638	7	1137
870616	12- 31	51	1	344	720	7	1200
870622	12- 31	55	1	344	725	7	1830
870624	12- 31	72	1	344	730	7	1890
870619	12- 42	18	1	345	375	7	1702
870723	13- 8	80	1	346	720	7	1992
870619	12- 36	50	1	347	730	7	1693

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870621	12- 65	55	1	348	730	7	1786
870623	12- 65	85	1	348	725	7	1855
870621	12- 4	50	1	349	650	7	1765
870623	12- 16	55	1	349	920	7	1847
870620	12- 6	51	1	350	680	7	1758
870621	12- 65	51	1	350	775	7	1795
870604	13- 5	15	1	352	873	7	1173
870616	12- 31	18	1	354	650	7	1187
870618	12- 16	50	1	354	870	7	1674
870721	13- 3	55	1	354	940	7	1913
870620	12- 22	55	1	355	810	7	1729
870622	12- 31	55	1	355	850	7	1829
870623	12- 65	85	1	355	905	7	1857
870618	12- 16	55	1	356	980	7	1668
870621	12- 65	55	1	356	930	7	1785
870618	12- 16	55	1	357	925	7	1671
870616	12- 31	51	1	358	880	7	1196
870623	12- 16	55	1	358	1000	7	1845
870619	12- 38	91	1	359	1025	7	1710
870617	12- 65	25	1	360	750	7	1635
870620	12- 22	55	1	360	890	7	1736
870621	12- 4	15	1	360	860	7	1771
870622	12- 31	48	1	360	955	7	1832
870621	12- 4	50	1	362	825	7	1763
870620	12- 6	84	1	363	750	7	1760
870619	12- 38	80	1	366	1000	7	1708
870619	12- 38	80	1	366	1060	7	1706
870621	12- 65	26	1	366	825	7	1801
870621	12- 65	51	1	368	1020	7	1796
870617	12- 65	55	1	369	655	7	1626
870722	13- 3	56	1	369	910	7	1940
870618	12- 4	52	1	370	900	7	1656
870616	12- 31	51	1	372	830	7	1198
870617	12- 65	75	1	374	1175	7	1648
870621	12- 65	26	1	374	800	7	1804
870602	13- 8	82	1	375	747	7	1126
870617	12- 65	75	1	375	1020	7	1649
870623	12- 66	22	1	375	930	7	1861
870604	13- 5	55	1	378	1093	7	1175
870617	12- 65	45	1	379	930	7	1642
870602	13- 7	60	1	380	964	7	1123
870621	12- 65	26	1	381	950	7	1792
870621	12- 65	92	1	381	1025	7	1797

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870602	13- 8	51	1	385	1026	7	1129
870621	12- 65	26	1	385	1250	7	1789
870623	12- 16	78	1	385	1100	7	1839
870723	13- 8	80	1	389	1225	7	1994
870617	12- 65	90	1	390	1025	7	1647
870621	12- 65	55	1	390	1150	7	1783
870602	13- 8	51	1	395	1030	7	1130
870617	12- 65	55	1	395	900	7	1627
870622	12- 31	85	1	398	1250	7	1837
870624	12- 22	46	1	398	1040	7	1878
870616	12- 22	80	1	399	1225	7	1620
870617	12- 65	55	1	399	1150	7	1628
870622	12- 38	90	1	400	1490	7	1807
870619	12- 36	50	1	401	1025	7	1694
870624	12- 31	72	1	404	1060	7	1892
870617	12- 65	45	1	405	1225	7	1641
870623	12- 16	85	1	405	1275	7	1841
870624	12- 38	70	1	407	1275	7	1886
870616	12- 31	51	1	410	1220	7	1197
870624	12- 38	70	1	411	1425	7	1887
870616	12- 22	57	1	412	1220	7	1606
870621	12- 65	26	1	418	1190	7	1800
870621	12- 65	26	1	418	1450	7	1805
870619	12- 16	78	1	421	1360	7	1690
870622	12- 38	72	1	422	1525	7	1808
870624	12- 22	86	1	434	1260	7	1883
870623	12- 22	79	1	439	1545	7	1865
870617	12- 65	55	1	445	1410	7	1629
870622	12- 38	45	1	450	1990	7	1824
870622	12- 38	45	1	466	1850	7	1825
870622	12- 38	90	1	470	2120	7	1806
870624	12- 22	86	1	486	1990	7	1885
870604	13- 6	55	2	196	153	1	1159
870721	13- 3	27	2	197	140	1	1908
870620	12- 22	48	2	205	160	1	1744
870722	13- 3	37	2	208	175	1	1962
870619	12- 38	20	2	212	175	1	1721
870621	12- 4	15	2	218	180	1	1772
870619	12- 36	20	2	219	275	1	1698
870616	12- 22	17	2	221	210	7	1619
870620	12- 6	22	2	223	200	1	1747
870721	13- 3	22	2	224	225	1	1902
870621	12- 4	50	2	225	250	1	1770

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870721	13- 2	18	2	225	250	1	1922
870618	12- 16	50	2	226	225	1	1673
870602	13- 7	11	2	227	243	7	1120
870617	12- 65	27	2	228	220	1	1637
870620	12- 22	48	2	228	210	1	1742
870619	12- 42	18	2	230	300	1	1704
870723	13- 7	18	2	230	270	1	1984
870602	13- 7	11	2	232	250	7	1118
870603	13- 6	29	2	232	267	1	1139
870622	12- 38	18	2	232	260	1	1820
870721	13- 2	26	2	234	200	1	1919
870721	13- 2	26	2	234	250	1	1918
870602	13- 7	15	2	235	267	2	1113
870622	12- 42	15	2	236	230	1	1810
870722	13- 3	91	2	238	230	1	1930
870723	13- 7	18	2	238	270	1	1977
870602	13- 8	59	2	240	259	1	1132
870603	13- 6	55	2	240	285	1	1153
870623	12- 42	11	2	240	235	7	1854
870722	13- 2	27	2	240	250	1	1927
870618	12- 16	18	2	242	240	1	1652
870622	12- 38	18	2	242	260	1	1821
870723	13- 7	18	2	243	325	1	1981
870602	13- 7	15	2	244	278	2	1117
870723	13- 7	18	2	244	320	7	1978
870619	12- 38	18	2	247	310	1	1719
870621	12- 16	50	2	248	290	1	1776
870721	13- 3	27	2	248	310	1	1907
870721	13- 2	18	2	248	325	1	1921
870602	13- 6	22	2	249	297	1	1136
870618	12- 16	18	2	249	230	1	1653
870603	13- 7	33	2	250	303	7	1150
870623	12- 36	14	2	251	290	1	1850
870621	12- 16	50	2	252	340	1	1782
870722	13- 2	55	2	252	260	1	1970
870722	13- 2	18	2	252	310	7	1965
870603	13- 8	51	2	253	317	1	1157
870623	12- 66	22	2	255	280	2	1862
870722	13- 3	26	2	255	350	1	1955
870722	13- 3	26	2	256	325	1	1952
870622	12- 38	18	2	258	360	1	1822
870602	13- 8	59	2	259	260	1	1131

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870605	13- 7	55	2	259	350	1	1183
870622	12- 38	14	2	259	310	1	1815
870619	12- 38	59	2	260	310	1	1725
870623	12- 22	20	2	261	325	7	1874
870722	13- 3	22	2	261	440	7	1949
870722	13- 2	18	2	262	300	1	1964
870721	13- 3	55	2	264	340	1	1914
870602	13- 7	15	2	265	342	7	1114
870623	12- 36	14	2	265	330	7	1851
870618	12- 16	18	2	267	280	1	1655
870620	12- 22	48	2	267	420	1	1740
870721	13- 3	27	2	269	410	1	1905
870722	13- 3	56	2	270	420	1	1943
870722	13- 3	26	2	272	410	1	1953
870603	13- 5	18	2	275	390	1	1146
870616	12- 22	17	2	277	450	7	1613
870622	12- 38	14	2	277	360	7	1814
870721	13- 3	27	2	277	420	1	1903
870616	12- 22	17	2	278	400	7	1618
870623	12- 66	22	2	278	390	7	1864
870616	12- 22	17	2	283	425	7	1614
870621	12- 4	15	2	284	400	7	1773
870602	13- 7	60	2	285	413	1	1124
870619	12- 38	18	2	286	400	1	1718
870620	12- 22	55	2	286	460	1	1734
870722	13- 3	37	2	286	490	7	1961
870621	12- 16	50	2	287	440	1	1778
870618	12- 4	26	2	288	465	7	1665
870619	12- 38	18	2	289	500	7	1716
870604	13- 5	66	2	290	562	2	1177
870604	13- 6	18	2	291	449	7	1168
870722	13- 3	37	2	291	470	7	1960
870604	13- 6	18	2	292	547	7	1167
870722	13- 3	56	2	292	525	1	1945
870722	13- 3	56	2	293	470	7	1941
870616	12- 22	17	2	294	460	7	1617
870618	12- 6	20	2	295	520	7	1678
870624	12- 31	72	2	296	450	1	1893
870603	13- 7	33	2	298	406	7	1149
870604	13- 6	18	2	300	543	7	1169
870619	12- 38	91	2	302	575	1	1715
870621	12- 4	50	2	303	500	7	1768
870616	12- 22	20	2	304	440	7	1611
870619	12- 42	18	2	304	590	7	1703
870619	12- 38	91	2	304	660	1	1712
870620	12- 22	15	2	304	560	7	1728

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870619	12- 36	20	2	305	575	1	1697
870616	12- 22	17	2	306	500	7	1615
870620	12- 6	55	2	306	480	7	1755
870622	12- 38	14	2	306	525	1	1813
870616	12- 22	57	2	308	660	7	1608
870620	12- 22	48	2	310	580	7	1738
870621	12- 16	50	2	310	700	7	1774
870723	13- 8	15	2	310	580	1	1974
870616	12- 22	20	2	311	550	7	1609
870619	12- 36	50	2	311	530	7	1695
870621	12- 4	50	2	311	510	7	1762
870623	12- 16	55	2	311	585	7	1844
870721	13- 3	86	2	311	590	7	1916
870721	13- 3	55	2	312	630	1	1912
870622	12- 31	48	2	313	550	7	1835
870722	13- 3	56	2	313	640	1	1944
870620	12- 6	22	2	318	660	7	1749
870620	12- 22	48	2	318	525	7	1739
870623	12- 22	20	2	318	595	7	1873
870722	13- 3	91	2	319	710	1	1928
870623	12- 16	55	2	320	645	7	1846
870621	12- 65	26	2	321	600	7	1791
870622	12- 31	48	2	321	675	7	1834
870622	12- 38	14	2	321	570	7	1816
870722	13- 3	59	2	321	500	7	1936
870618	12- 6	20	2	322	525	7	1682
870621	12- 4	50	2	322	540	7	1767
870616	12- 31	51	2	323	560	7	1601
870616	12- 31	22	2	324	520	7	1191
870618	12- 4	26	2	324	725	7	1663
870623	12- 22	20	2	324	625	7	1867
870603	13- 7	33	2	325	568	7	1151
870617	12- 66	22	2	325	515	7	1623[c]
870617	12- 65	25	2	325	600	7	1632
870617	12- 65	27	2	325	575	7	1636
870722	13- 3	91	2	325	625	7	1929
870616	12- 22	57	2	326	550	7	1607
870618	12- 6	20	2	326	685	7	1677
870624	12- 22	86	2	327	560	7	1884
870622	12- 38	18	2	331	775	7	1818
870618	12- 16	55	2	332	740	7	1666
870618	12- 6	50	2	333	730	7	1684
870617	12- 65	90	2	334	720	7	1646
870722	13- 3	59	2	337	700	7	1932

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870620	12- 22	55	2	339	840	7	1730
870624	12- 22	46	2	341	610	7	1880
870617	12- 65	25	2	342	675	7	1634
870620	12- 6	29	2	345	740	7	1746
870621	12- 65	26	2	345	750	7	1788
870616	12- 31	22	2	346	700	7	1193
870620	12- 6	55	2	348	780	7	1753
870619	12- 36	50	2	349	875	7	1692
870620	12- 6	22	2	349	825	7	1750
870621	12- 4	50	2	349	830	7	1769
870621	12- 16	50	2	350	900	7	1779
870619	12- 38	91	2	351	910	7	1711
870616	12- 22	57	2	352	800	7	1605
870721	13- 3	55	2	352	800	7	1909
870617	12- 65	25	2	355	750	7	1631
870620	12- 6	55	2	356	925	7	1751
870617	12- 65	45	2	359	810	7	1639
870620	12- 22	22	2	359	780	7	1726
870723	13- 8	80	2	360	1175	7	1995
870618	12- 6	20	2	361	1220	7	1683
870623	12- 16	85	2	361	870	7	1843
870617	12- 65	55	2	362	895	7	1630
870621	12- 4	50	2	362	890	7	1764
870622	12- 31	22	2	362	925	7	1826
870616	12- 22	80	2	364	942	7	1621
870602	13- 8	51	2	365	870	7	1128
870617	12- 66	46	2	365	650	7	1624
870617	12- 65	90	2	365	790	7	1645
870621	12- 65	92	2	365	1090	7	1798
870621	12- 65	26	2	367	910	7	1802
870621	12- 65	26	2	368	850	7	1790
870603	13- 6	55	2	370	932	7	1155
870623	12- 22	79	2	371	910	7	1866
870721	13- 3	55	2	372	1050	7	1911
870620	12- 6	55	2	374	1040	7	1759
870624	12- 31	72	2	374	980	7	1896
870617	12- 65	25	2	375	775	7	1633
870618	12- 4	55	2	375	930	7	1660
870619	12- 38	91	2	375	1070	7	1713
870620	12- 6	55	2	375	810	7	1752
870617	12- 65	75	2	377	875	7	1650
870624	12- 31	72	2	378	960	7	1894

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(e) quillback rockfish							
870616	12- 22	50	2	381	920	7	1623[c]
870624	12- 31	72	2	383	925	7	1895
870624	12- 31	72	2	384[d]	160	7	1891
870623	12- 66	85	2	385	1100	7	1876
870602	13- 7	59	2	387	1149	7	1125
870723	13- 8	80	2	388	1200	7	1993
870616	12- 31	51	2	390	1110	7	1199
870617	12- 65	45	2	393	1050	7	1638
870722	13- 3	26	2	393	1010	7	1954
870620	12- 22	55	2	396	1310	7	1737
870624	12- 22	46	2	397	1060	7	1881
870620	12- 6	29	2	400	1110	7	1745
870622	12- 38	14	2	403	1230	7	1817
870618	12- 16	50	2	405	1325	7	1675
870623	12- 16	78	2	405	1230	7	1838
870721	13- 3	86	2	405	1300	7	1917
870621	12- 65	55	2	406	1125	7	1784
870722	13- 3	56	2	408	1216	7	1946
870619	12- 16	78	2	410	1350	7	1691
870623	12- 16	85	2	415	1520	7	1842
870623	12- 65	85	2	415	1320	7	1856
870623	12- 16	85	2	418	1515	7	1840
870616	12- 31	51	2	421	1220	7	1195
870621	12- 65	92	2	422	1410	7	1799
870620	12- 6	84	2	426	1275	7	1761
870604	13- 8	88	2	427	1525	7	1160
870604	13- 5	66	2	434	1687	7	1179
870722	13- 3	59	2	435	1460	7	1937
870621	12- 65	51	2	436	1325	7	1794
870624	12- 22	86	2	438	1420	7	1882
870617	12- 65	90	2	455	1590	7	1643
870617	12- 65	90	2	460	1540	7	1644
(f) black rockfish							
870618	12- 6	20	1	435	1590	4	1317
870618	12- 6	20	1	440	1490	4	1320
870618	12- 6	20	1	443	1670	7	1318
870618	12- 6	20	1	459	1810	4	1319
870620	12- 6	22	1	472	1860	4	1321
870622	12- 31	85	1	474	1550	7	1323
870617	12- 65	55	1	505	1850	7	1313
870616	12- 22	50	1	518	2430	7	1309
870622	12- 31	85	1	530	2010	4	1322
870617	12- 65	55	1	535	2320	4	1312

Appendix table 5a (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO
(f) black rockfish							
870617	12- 65	55	1	545	2475	3	1315
870617	12- 65	55	1	550	1500	3	1314
870617	12- 65	55	1	565	2725	4	1310
870617	12- 65	55	1	580	2750	4	1311
870618	12- 6	20	2	466	1850	7	1316
(g) tiger rockfish							
870602	13- 7	15		235			
870605	13- 7	18		247			
870603	13- 5	55		355			
870604	13- 5	66	1	399	1079	7	
870617	12- 65	55	2	440	1400	7	
(h) yelloweye rockfish							
870619	12- 38	80	1	514	2210	7	342
870618	12- 16	55	1	593	3675	7	340
870623	12- 66	85	1	650	5160	7	343
870624	12- 22	86	1	748	7040	7	344
870722	13- 3	91	2	481	1690	1	
870619	12- 38	80	2	566	2925	7	341
870617	12- 65	75	2	720	6590	7	339

[a]1=male; 2=female.
[b]maturity codes are described in Appendix table 4.
[c]otoliths from two fish were assigned the same number.
[d]error in length or weight measurement.

Appendix table 5b. Date, site, depth, sex, and fork length (mm) for landed catch excluding rockfish. Data are sorted by species, sex and length.

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	DATE	SITE	DEP (m)	SEX[a]	LEN (mm)
(a) Pacific cod									
870623	12- 16	14		328	870722	13- 2	55		436
870621	12- 4	50		330	870619	12- 42	18		449
870621	12- 16	21		345	870619	12- 16	78		452
870621	12- 4	15		348	870623	12- 16	78		455
870618	12- 4	55		368	870623	12- 16	78		551
870619	12- 42	18		382	870618	12- 16	80		589
870721	13- 3	55		425	870618	12- 16	80		600
(b) kelp greenling									
870617	12- 65	27	1	313	870617	12- 65	27	1	390
870722	13- 3	26	1	320	870616	12- 22	17	1	394
870622	12- 31	28	1	335	870616	12- 31	18	1	395
870623	12- 66	22	1	340	870616	12- 22	20	1	395
870604	13- 5	33	1	349	870621	12- 65	26	1	395
870622	12- 31	28	1	349	870617	12- 66	22	1	398
870620	12- 6	29	1	350	870616	12- 22	17	1	400
870603	13- 6	29	1	351	870620	12- 22	48	1	400
870622	12- 31	28	1	353	870617	12- 66	22	1	401
870623	12- 66	22	1	354	870723	13- 6	55	1	401
870616	12- 22	20	1	355	870616	12- 22	80	1	412
870619	12- 38	20	1	355	870616	12- 22	50	1	420
870620	12- 22	22	1	357	870620	12- 22	22	1	448
870619	12- 16	25	1	358	870603	13- 8	9	2	255
870617	12- 66	18	1	359	870623	12- 66	22	2	325
870619	12- 16	25	1	360	870620	12- 6	29	2	345
870620	12- 22	22	1	361	870617	12- 66	18	2	351
870623	12- 22	20	1	361	870620	12- 22	55	2	354
870602	13- 6	22	1	364	870616	12- 22	20	2	360
870619	12- 16	25	1	365	870621	12- 4	15	2	360
870620	12- 6	29	1	365	870621	12- 4	15	2	363
870621	12- 65	26	1	365	870620	12- 22	48	2	364
870723	13- 7	18	1	365	870723	13- 8	15	2	364
870623	12- 66	22	1	368	870623	12- 36	14	2	367
870623	12- 66	22	1	369	870602	13- 8	11	2	370
870723	13- 8	15	1	369	870620	12- 22	55	2	372
870622	12- 38	18	1	370	870621	12- 16	20	2	372
870620	12- 22	48	1	375	870603	13- 5	22	2	375
870721	13- 3	55	1	375	870621	12- 4	15	2	378
870620	12- 6	22	1	377	870619	12- 36	20	2	380
870616	12- 22	17	1	378	870620	12- 6	29	2	380

Appendix table 5b (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	DATE	SITE	DEP (m)	SEX[a]	LEN (mm)
(b) kelp greenling									
870617	12- 65	25	1	378	870623	12- 66	22	2	380
870620	12- 22	15	1	379	870618	12- 16	18	2	385
870620	12- 22	15	1	379	870616	12- 22	50	2	390
870621	12- 4	50	1	379	870618	12- 6	20	2	392
870617	12- 65	25	1	380	870618	12- 6	20	2	392
870616	12- 22	20	1	383	870619	12- 16	25	2	392
870604	13- 5	66	1	385	870619	12- 16	25	2	399
870620	12- 22	15	1	385	870622	12- 38	14	2	402
870618	12- 4	26	1	387	870619	12- 36	50	2	408
870620	12- 6	22	1	387	870616	12- 22	20	2	412
870620	12- 22	55	1	388	870618	12- 16	18	2	413
870621	12- 4	50	1	388	870619	12- 16	25	2	416
870604	13- 5	66	1	390	870616	12- 22	20	2	419
870616	12- 22	20	1	390	870616	12- 22	50	2	425
870616	12- 22	20	1	390					
(c) lingcod									
870623	12- 16	55		1170	870618	12- 4	26	1	455
870723	13- 6	15	1	345	870722	13- 3	37	1	459
870602	13- 8	51	1	368	870618	12- 4	26	1	460
870721	13- 3	27	1	369	870721	13- 3	55	1	460
870604	13- 6	15	1	370	870617	12- 66	18	1	468
870604	13- 6	18	1	370	870618	12- 6	20	1	468
870721	13- 3	27	1	391	870721	13- 2	18	1	471
870603	13- 5	22	1	395	870722	13- 3	56	1	478
870603	13- 8	51	1	395	870603	13- 8	51	1	485
870722	13- 3	56	1	395	870616	12- 31	22	1	485
870603	13- 6	55	1	400	870603	13- 7	51	1	490
870603	13- 7	51	1	402	870602	13- 6	22	1	495
870722	13- 3	26	1	403	870621	12- 16	21	1	500
870722	13- 3	26	1	405	870722	13- 2	27	1	509
870721	13- 3	27	1	409	870723	13- 7	51	1	510
870722	13- 3	56	1	409	870722	13- 2	55	1	513
870603	13- 5	22	1	413	870722	13- 3	37	1	519
870604	13- 6	18	1	415	870722	13- 3	37	1	530
870603	13- 8	9	1	425	870722	13- 3	37	1	534
870721	13- 3	27	1	425	870722	13- 3	37	1	540
870722	13- 3	56	1	430	870604	13- 5	15	1	545
870723	13- 7	51	1	430	870604	13- 5	66	1	550
870621	12- 65	55	1	431	870622	12- 31	48	1	575
870722	13- 2	27	1	433	870605	13- 7	18	1	600
870604	13- 6	55	1	435	870603	13- 5	55	1	605

Appendix table 5b (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	DATE	SITE	DEP (m)	SEX[a]	LEN (mm)
(c) lingcod									
870721	13- 3	55	1	435	870620	12- 6	22	1	610
870602	13- 8	13	1	438	870622	12- 31	48	1	630
870721	13- 3	55	1	438	870623	12- 66	22	1	631
870603	13- 5	55	1	445	870619	12- 42	18	1	635
870603	13- 5	18	1	445	870622	12- 31	28	1	645
870722	13- 2	27	1	445	870604	13- 5	66	1	653
870621	12- 4	50	1	450	870602	13- 7	60	1	657
870722	13- 3	59	1	450	870721	13- 3	55	2	425
870603	13- 7	33	1	453	870723	13- 6	15	2	801
870603	13- 8	9	1	455	870623	12- 66	22	2	830
870604	13- 6	55	1	455					

[a]1=male; 2=female.

Appendix table 6. Date, species, fork length (mm), and sex for groundfish sampled from the sport fishery at Telegraph Cove, 16-24 June, 1987.

Date	Species[a]	Length (mm)	Sex
870621	BL	375	
870621	BL	401	
870621	BL	410	
870619	BO	686	
870616	CO	282	
870616	CO	284	
870616	CO	291	
870616	CO	292	
870616	CO	410	
870621	CO	454	
870616	QB	294	
870617	QB	320	
870621	QB	322	
870621	QB	352	
870616	QB	374	
870617	QB	384	
870617	WI	651	
870617	YE	681	
870617	YE	719	
870619	YE	720	
870617	YE	724	
870619	YE	733	
870619	YE	758	
870619	YE	820	
870617	YT	284	
870616	YT	304	
870617	YT	308	
870616	YT	310	
870616	YT	315	
870616	YT	320	
870617	YT	320	
870624	YT	320	
870622	YT	340	
870619	YT	352	
870616	YT	356	
870616	YT	372	
870616	YT	431	
870617	YT	446	
870617	YT	463	
870617	YT	530	

Appendix table 6 (cont'd)

Date	Species[a]	Length (mm)	Sex
870621	BL	375	
870617	KG	349	F
870616	KG	355	M
870616	KG	357	F
870616	KG	359	M
870621	KG	366	M
870616	KG	379	F
870621	KG	380	M
870621	KG	382	F
870621	KG	397	M
870621	KG	398	M
870621	KG	398	M
870616	KG	406	F
870621	KG	406	M
870616	KG	412	F
870621	KG	431	F
870621	KG	691	M
870624	LC	430	
870616	LC	435	M
870616	LC	508	M
870617	LC	690	M
870617	LC	1170	

[a]Species codes are given in Appendix table 1.